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The AIRCRAFT ENGINEER AND AIRSHIPS

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Asserting a Principle

THE Note (printed in full on page 230) which has been addressed by the British Government to Japan concerning the wounding by Japanese airmen of His Majesty's Ambassador to China, Sir Hughe Knatchbull-Hugessen, is a document which will make history.

Of late years there has been a degenerate tendency to assume that once hostilities have broken out all international law will go by the board, and that air forces above all other arms will be immune from any restraint. In many quarters it has been assumed that it is the privilege of air forces to attack civilian populations with the object of "striking at nerve centres," as the catch-phrase goes, and breaking the resistance of the enemy by slaughtering, and so intimidating, the electorate which is the ultimate authority over both the Government and the armed forces. It may be questioned whether the people are the ultimate authority in totalitarian countries, but that point may be allowed to pass for the moment. It is also lightly assumed in some quarters that the days are over when a formal declaration of war is necessary and usual. A sudden blow by an air force, it has been said, coming as a surprise without any declaration of war, will be the usual procedure.

Both of these immoral theories, for such they are, have received a staggering and very salutary set-back by this British Note to Japan. His Majesty's Government has not taken its stand on the ground that Sir Hughe was a British subject—though that is the fact which has entitled Britain to make this protest. It has not based its case on the injury to the representative of His Britannic Majesty in China, whose person should be sacrosanct even to an enemy; for it admits that the Japanese airmen who fired the shots and dropped the bomb probably did not intend to attack the British Ambassador as such. The position taken up by H.M. Government in its Note is that the attack was made on non-combatants, and so violated "one of the oldest and best established rules of international law that direct or deliberate attacks on non-combatants are absolutely prohibited." The Note pointedly adds: "Aircraft are in no way exempt from this rule."

Thus the Note is not merely, or even chiefly, an expression of Britain's indignation at the wounding of one of her nationals or at the insult and injury to her most exalted representative in China. It takes a far wider view, and champions the cause of all non-combatants in all wars. The following passage deserves especial emphasis and especial attention:—

> "His Majesty's Government feel that they must take this opportunity to emphasise the wider significance of this event. It is an outstanding example of the results to be expected from indiscriminate attack from the air. Such events are inseparable from the practice, as illegal as it is inhuman, of failing to draw that clear distinction between combatants and non-combatants in the conduct of hostilities which international law, no less than the conscience of mankind, has always enjoined.
>
> "The fact that in the present case no actual state of war has been declared or expressly recognised by either party to exist emphasises the inexcusable nature of what occurred."

Without Declaration

In other words, if Sir Hughe were to die from his wounds (everyone is glad to hear that he is making good progress) the Japanese who fired the shot would be guilty of murder. The case would be bad enough if Japan were a declared belligerent, but even that faint excuse cannot be made. A belligerent's forces are at least entitled to fire at somebody, though not at non-combatants, but the forces of a Power which has not declared war have no right to fire at anyone at all. In fact, a Power which fights without declaring war, and so acquiring the rights and privileges of a belligerent, is in a very equivocal position when an "incident" occurs with a neutral State; and Japan must be well aware of the discomfort of her present situation. The moral, of course, is that a declaration of war is not a mere relic of an outworn past, but is a practical desideratum for those who intend to make war.

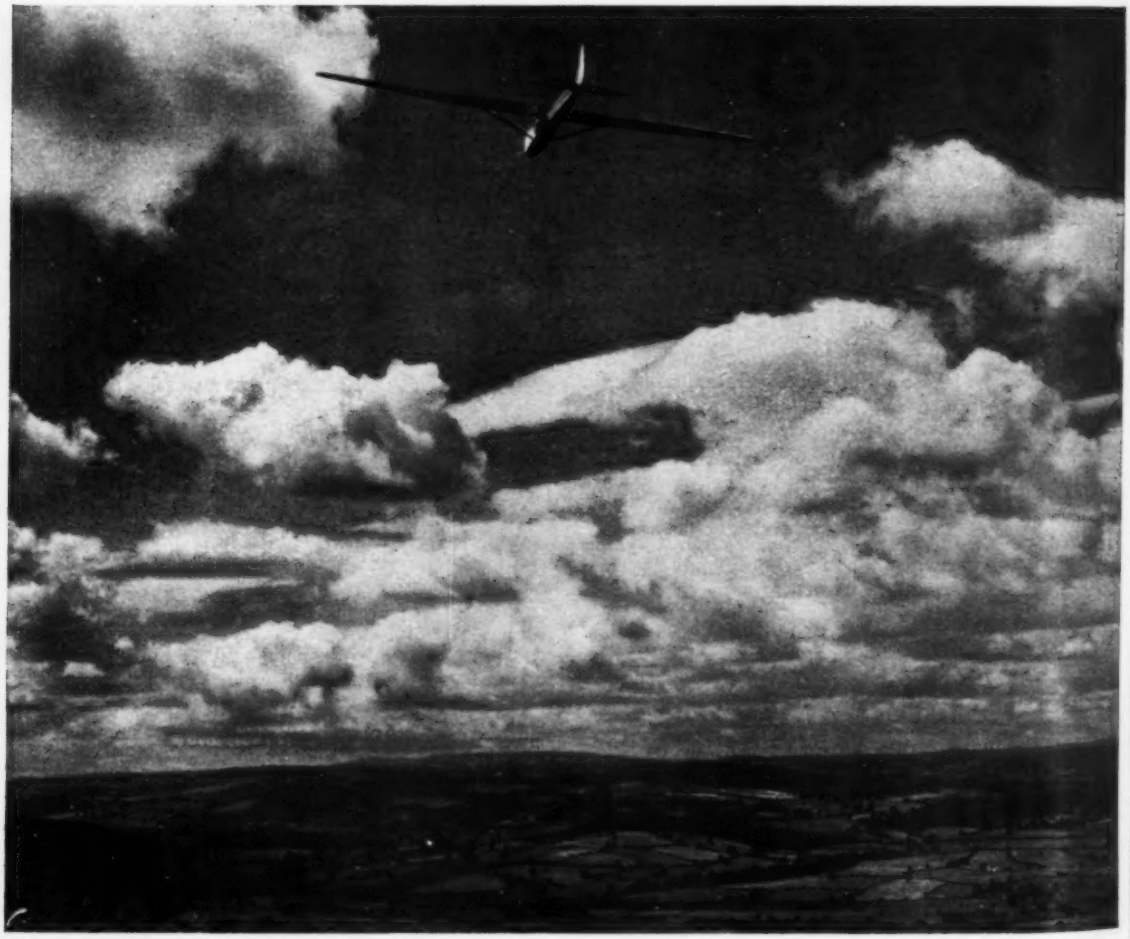
Doubtless there will be many persons in the chancelleries and the forces of various countries, and especially in their air forces, who will be surprised at the line which Britain has taken in making this protest

to Japan. The method of protest adopted by Britain is very different from other cases of protest which come to mind. When the *Deutschland* was hit by a Spanish bomb, German warships in reprisal bombarded a Spanish port, and it has not been stated that any particular care was taken to avoid the spilling of civilian blood. That action was supposed to vindicate German honour. Britain, on the other hand, has taken, not a national, but an international point of view. Her refusal to accept the claim made in some quarters that air forces are entitled to kill all and sundry, regardless of consequences, will doubtless be read with interest in Spain—though there, if anywhere, it has been made clear enough that the bombing of civilians is at least useless to force the surrender of a town—and probably with amazement by the Italian Government, which did find that mustard gas had an effect on unclothed Africans. In many parts there are persons who have concluded that the League of Nations is an ineffective body, and that therefore all agreements signed at Geneva are mere "scraps of paper." Britain, however, has a reputation for honouring her signature on a scrap of paper. For the scrap of paper which guaranteed the neutrality of Belgium she declared war on Germany in 1914. Britain suffered much in the war, but her signature was honoured. Lately, when one member of the League made war on another, Britain took the lead in the distasteful task of applying sanctions. Now, once more, Britain upholds, not so much a single scrap of paper, but an age-long principle of international law, which some parties have thought to be dead and buried. It is not yet safe to write a law down as obsolete when Britain says that it is alive and binding.

Effects of the Note

The lesson which this Note reads to the world at large is its most important side. Its effect also on the situation in the Far East is not likely to be negligible. It is always a serious matter for a belligerent (and Japan is at war in fact) to provoke a neutral. The classic example is the entry of the United States into the Great War. Japan, anxious for a speedy victory, can ill afford a quarrel with Britain.

A minor result of this Note may be the effect it will have on some of the younger officers of the Royal Air Force who, regardless of the doctrine taught at the R.A.F. Staff College, seem to have imbibed the idea that their rôle in war will be to bomb the enemy without discrimination. This Note will make it clear to them that very great discrimination on their part will be required by the British Government. The sooner that they, as well as all the foreigners mentioned above, come to realise that the bomber aeroplane is in essence a long-range gun, and not a mere slaughterer, the better it will be for the future of civilisation.



SILENT SERENITY: A pleasant impression of a Professor sailplane over the Midland Gliding Club's site at Long Mynd, Shropshire.

The Outlook

A Running Commentary on Air Topics

High-lift Devices

FROM the earliest days of flying the question of lift coefficient has occupied aerodynamic scientists and aircraft designers. In the old days of thin biplane sections, tested on small models in low-speed wind tunnels, we used to think in terms of maximum lift coefficients of the order of 0.55-0.60 in the old "absolute" units, hoping that the full-scale figure would be a little better, as it usually was with those thin sections of fairly small camber.

Then came the Fairey hinged trailing-edge flap, the Handley Page slot and, more recently, the various versions of the "split" flap and the slotted flap. One way and another, these devices have succeeded in raising the lift coefficients to a value of one or more in the old units, or to something over two in the modern units (which are twice the value of the old "absolute" units to which this country stuck long after everyone else had abandoned them as irrational).

The increase in lift coefficient obtained with these various high-lift devices with their accompanying increase in drag, has been used mainly as an excuse for pushing up wing loadings, which have gone up from the 12lb./sq. ft. or so to about twice that value. Landing speeds have not come down; on the contrary, they have tended to increase, this being considered safe because of the generally higher standard of pilotage and steepening of gliding angles of "clean" machines by the high-lift devices.

It is natural to ask whether or not the incessant search for still greater lift is to continue to be accompanied by further increases in wing loadings, maintaining the present landing speeds. We have an authority as eminent as Mr. Arthur Gouge showing estimates for flying boats with wing loadings of 45lb /sq. ft. and expecting from the increased loading considerably higher cruising speed, or conversely, a longer range or greater pay-load. On the other hand, at the Lillienthal Gesellschaft's meeting in Germany last year, an eminent American expert propounded the theory that there was little to be gained by going beyond about 30lb./sq. ft.

Harnessing An Old Enemy

IF any extra lift which may be attained in the future is to be used for decreasing the landing speed and particularly if it is found possible to use it for increasing angle of climb, then there is very good reason for continuing the search for still greater lift. One way of achieving a startling increase in lift coefficient, or the equivalent thereof, was explained to *Flight* the other day by Captain Goodman Crouch, who is at present back in his native country after a stay of many years in the United States.

Shortly after establishing himself on "the other side," in company with his friend Harold Bolas, who had until then been chief designer to George Parnall, experiments were undertaken with a view to determining what advantage could be taken of the slipstream from the airscrews across the wing A little experimental machine was built, and gave some remarkable results. The work was continued and both theoretically and practically the subject was thoroughly thrashed out.

We are not at liberty to disclose details at present, but by a special arrangement of the outboard engines and their airscrews, not only is it possible to obtain the equivalent of maximum lift coefficients of more than three, but with wing loadings as commonly used to-day, remarkably low sinking speeds are attained, coupled with very steep approaches. Not only so, but angles of climb are vastly improved. There are many other advantages to which we cannot refer here, but the interesting point is that they are all attained without any sacrifice in maximum speed, and with comparatively insignificant increase in weight and complication.

At first sight sitting on one's own slipstream sounds rather like sitting in a basket and trying to lift oneself by the handle, but actually the principle is perfectly sound when one comes to analyse it.

Flying Searchlights?

AIR exercises must inevitably suffer from a lack of reality, but that is not to say that they serve no useful purpose. It is safe to bank on certain dailies explaining to their readers that "the bombers always get through," that "London would have been laid in ashes," and so forth. Actually, of course, training is the main object of these exercises, and from them valuable lessons are often to be learnt.

One of the fundamental needs of air defence is close co-operation between the searchlights and the defending fighter aeroplanes, the former finding the raiders and "pointing them out" and the latter attacking them. When, as often happens, a dense cloud layer intervenes and prevents the searchlight beams from penetrating it, the fighters have a difficult task in finding the attackers, even if the air is clear above the clouds.

Discussing this matter with *Flight* the other day, Mr. W. S. Shackleton made the interesting suggestion that special aircraft should be designed to carry powerful searchlights to the height at which raiders were likely to be flying. The objections to the scheme are fairly obvious. The first question that comes to mind is that of weight. Can an aeroplane be designed to carry not only a large searchlight (presumably housed in a transparent nose turret), but also the electric generator for supplying the current, and if the answer is "yes," can the aircraft spare sufficient power from one of its main engines to drive the generator? Mr. Shackleton, who is a practical man and who has several successful aircraft designs to his credit, regards the problem as being soluble. He points out that the generator will not be used during the climb to the operational height, and that therefore the aircraft will have all its power available for climbing.

Telling the Fighters

APART from the interesting problems connected with the type of transmission to be used so that the main aircraft engines could, instead of being throttled, use their surplus power in driving the generator, there are many aspects to be considered. For instance, an aeroplane cruising around with a powerful searchlight sweeping the skies would be a wonderful target for enemy aircraft. Furthermore, even if it spotted the raiders in time to switch off its searchlight before it was attacked, would it be able to communicate the location of the raiders to the defending fighters? Searchlights on the ground can do so because their position is known, and it becomes a matter of geometry to work out, from the angles of the beams, the exact location in space of the raiders. The searchlight aeroplane would be above the clouds, and might not know very accurately its own position. It would seem that it would have to keep its beam on the raiders until the fighters arrived on the scene, with considerable risk to itself. Nevertheless, the suggestion is an interesting one and deserves careful examination.

DIARY OF FORTHCOMING EVENTS—PAGE 235

LYMPNE'S FIFTH

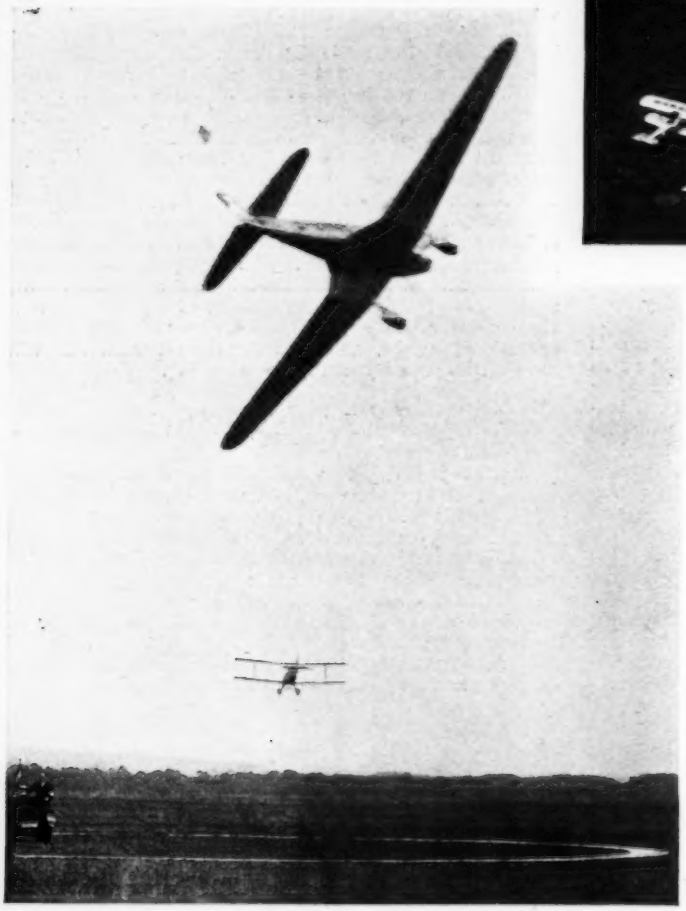
More Than a Hundred Foreign Guests at the Cinque Ports International Rally: Herr Clausen (Klemm 35) Wins Wakefield Cup at 120.75 m.p.h.

(Illustrated with "Flight" photographs.)

ALTOGETHER, the Lympne International is becoming a little too much of a good thing to be run by a club, however enthusiastic. The work involved—quite apart from the expense—is very considerable indeed, and even the Royal Aero Club, with all its resources, made a good deal of fuss about the organisation of last year's Week-End Aerien, which was really no more ambitious, though slightly more prolonged.

Mr. and Mrs. Davis appear to have decided that this shall be the last Rally, and one really cannot blame them. Perhaps when they and their helpers have recovered from the effects of the fifth and largest of the Lympne Internationals they will change their minds. In any case, somebody must help to take it over; we cannot possibly permit such a useful and impressive affair to be given up.

However, no guest or visitor could have had any inkling of the labours involved, and, generally speaking, everything went as smoothly as it always has done, in spite of the fact that there were more than a hundred foreign guests.



(Left) The Klemm 35, which, flown by Herr Clausen, won the race, rounding the aerodrome turn. He is about to overtake Mr. Du Port's Moth Major. In the picture above he is being congratulated by Mrs. W. E. Davis, who entered the machine which finished third.

THE INTERNATIONAL

The best machinery is always silent and unobtrusive. While Mr. W. E. Davis did his work in the control hut and at the microphone, Mrs. Davis found time to speak to all and sundry while rushing hither and thither; and the extent of the preliminary work could only have been imagined. It would obviously be impossible to mention all the names of those who were responsible for the organisation.

The real events of the two-day meeting began with the first heat of the Cinque Ports Wakefield Cup race, for which there were twenty-one entrants and sixteen starters—eight in each heat. Previously, however, Messrs. Dowson (Hornet Moth) and Mistry (B.A. Swallow) had respectively won the British and foreign arrival competitions for which thirty-two optimists put down within a quarter of an hour of the three-quarters allowed. Mr. Mistry (hardly foreign since he is one of the Bombay Club pilots now over here) landed within twenty seconds of the zero moment, which, for the benefit of the unsuccessful, may be given as 21 min. 10 sec. after midday.

The Speed Bug Bites

The course for the race (heats on Saturday—final on Sunday) was such that, in better visibility, it would have been possible to see the competitors almost all the way round, and the turning point on the aerodrome itself gave the spectators everything for which they could wish in the way of high-speed close-ups. Basically a four-sided affair, this course was given a little kink at the aerodrome so that the competitors were forced to go from one steep bank to another in a high-speed S-turn at that point. The turning points were at Lympne (car), Summerhouse Hill (pylon), Haskinglea (white board), Addington (pylon), and on a field to the west of the aerodrome, the last being marked with a flag. The lap distance was 16.5 miles, or thereabouts, and three laps were covered in each of the heats and the final.

Some idea of the number of visiting machines can be obtained from the aerial view of Lympne and the machine park at the top of the page. Other machines were scattered about the aerodrome or were in the air when this picture was taken, and more were to arrive. On the left is M. Bandinideks Karlis who was second with the Latvian V.E.F. J.12, while above are the two leading machines, the Klemm in the foreground and the V.E.F. on the left. Two of the four Gauntlets at the meeting may be distinguished in the background.

Unfortunately for amateur tipsters practically all the handicap-beaters were in the second of the two heats, and the eventual result came as a surprise to the majority of the spectators. Everyone thought that the Klemm 35 stood as good a chance of winning as any, but on the heat showings it appeared that G. de Havilland's T.K.2 might be placed second, with either the special Hawk Major (entered by Mrs. Davis and flown by Mr. A. J. S. Morris, the club's chief instructor), the Latvian V.E.F. J.12 (a very fast machine with a Cirrus Minor engine) or Henshaw's Mew Gull in third place.

In fact, the second-heat leaders, almost *en masse*, beat the

Impressions of the two different aspects of the meeting—racing and display. On the left the T.K.2 provides Mr. G. de Havilland with a little "g" at the aerodrome turn, while on the right the three Gauntlets of No. 111 (F) Sq. are concluding one of their two shows.

CINQUE PORTS WAKEFIELD CUP RACE.

RESULTS.

HEAT I.

Pilot.	Machine.	Finishing Time.*	Flying Time.	Speed.
		min. sec.	min. sec.	m.p.h.
1. G. de Havilland ..	T.K.2	27 41	17 21	173
2. A. V. Harvey ..	Whitney Straight	27 47	21 54	137
3. A. Du Port	Moth Major ...	27 57	27 12	110.5
4. Seidemann	B.F.W. 108 ..	28 10	17 14	174
5. Field-Richards ..	Porterfield ...	28 51	28 51	104
6. G. Hansez	Caudron 581 ..	28 56	17 27	172
7. H. F. J. Broadbent ..	B.A. Eagle ...	28 59	23 56	125.25
8. H. R. A. Edwards ...	Hawk Major ...	29 43	23 40	127

HEAT II.

1. Clausen	Klemm 35 ..	24 59	24 59	120
2. A. J. S. Morris ...	Hawk Major ...	25 14	19 18	155.5
3. B. Karlis	V.E.F. J.12	25 20	21 21	140.5
4. A. Henshaw ..	Mew Gull ...	25 21	14 26	208
5. R. M. Hackney ...	Hendy Hobo	25 33	23 45	126.5
6. J. Bayley	Miles W.S.	25 41	22 39	132.5
7. Arnaux	Caudron 685 ...	26 22	14 54	201.5
8. F. J. C. Butler ...	Vega Gull ...	26 35	19 41	152.5

FINAL.

1. Clausen	Klemm 35 ..	27 14	24 52	120.75
2. B. Karlis	V.E.F. J.12	27 37	21 16	141
3. A. J. S. Morris ...	Hawk Major ..	27 40	19 22	155
4. A. Henshaw ..	Mew Gull ...	27 42	14 25	208
5. A. V. Harvey ..	Whitney Straight	27 49	21 56	137
6. R. M. Hackney ..	Hendy Hobo	27 50	23 40	126.75
7. G. de Havilland ..	T.K.2	27 51	17 31	171.5
8. A. Du Port ...	Moth Major	28 3	27 18	110
9. Seidemann ..	B.F.W. 108	28 11	17 15	174
10. Field-Richards ..	Porterfield ...	29 13	29 13	102.75

* Handicaps may be obtained by subtracting the net flying times from the finishing times.

AWARDS.

Cinque Ports Wakefield Cup and £50 (presented by Lord Wakefield) to Herr Clausen.

Silver Medal and £25 (presented by Mr. F. Sigrist) to Mr. Janis Vitols (pilot, B. Karlis).

Bronze Medal and £10 (presented by Mr. Noel Coward) to Mrs. W. E. Davis (pilot, A. J. S. Morris).

Speed Trophy (presented by Mr. H. J. Yates) to Mr. A. Henshaw.

Special silver medal (first foreign machine home) to Herr Clausen.

Herman Brand Prize (presented by Herr Brand of Frankfurt) to Mr. A. J. S. Morris.

first lap leaders. Herr Clausen's Klemm won by a comparatively handsome margin, with Karlis' V.E.F. leading Mr. Morris by three seconds, and the latter leading the Mew by two seconds. The T.K.2 came by as seventh, only eleven seconds outside third place. For some reason or other this machine took just ten seconds longer to cover the course in the final, so the tipsters' reckonings were not so far out after all. What can the poor experts do when six machines out of an entire field of ten are encouraged by Messrs. Dancy and Rowarth to come over the line within fourteen seconds of one another? The winners' "handsome" margin was a matter of twenty-three seconds. Tables, from which the speeds and handicaps may be extracted, appear on this page, with the names of the prize-winners.

No Demonstrations

So much for the race, which can hardly be dealt with piecemeal. Fortunately for the patience of the spectators at Lympne there were no series of demonstrations—other than those of the aerobatic variety. An excellent exception was made in the case of the Autogiro, which is sufficiently different in its characteristics to be worthy of a single display. For this affair Mr. Brie produced one or two new tricks, and his show has certainly become one of the cleanest and most efficient that it is possible to imagine. One of his new tricks can only be described as a "gyratory vertical." The machine is turned on its axis during the descent, the rate of turn being nicely gauged so that the ground is reached at the moment when the machine is facing dead into wind. Well, well. People still clamour for joy-rides, too, in this always interesting device.

Undoubtedly the high spots of the week-end were the demonstrations by three pilots of No. 111 (F) Sqn. with Gloster Gauntlets—Flt. Lt. H. V. Kennedy and P/Os. M. L. Robinson and M. W. B. Knight—given on each of the two days. Sqn. Ldr. G. V. Howard, D.F.C., explained the manœuvres, some of which were new, and the loudspeakers were connected to a short-wave receiver so that the flight leader's orders could be heard; unfortunately, the arrangments failed on Sunday, but that gave one an even better opportunity of studying the perfection of the flying, which was all the more noticeable by reason of the quietness of the Gauntlets' Mercuries.

On each day the conditions were rather rough, but only

Beating the band : Herr Paul Förster (F. W. Stieglitz) concludes his performance with a not-too-emotioning inverted fly-past (left). We are slowly becoming accustomed to that sort of thing. Above and on the left is an impression of Herr Emil Kropf's F. W. Stösser. Close inspection may show that the pilot is holding lots of top rudder and left aileron ; anyway, the machine is not going in the direction in which it is pointing. At the top can be seen Mrs. Hutton-Rudolph, who also gave an excellent aerobatic show, and Herr Kropf himself.

occasionally did one of the machines move a foot or two out of position, even when they were carrying out flight loops, rolls and stalled turns in line abreast formation. Lympne is not Hendon, and the performance was made still more impressive because the majority of the actions were carried out below a thousand feet—almost of necessity on the Saturday, when the cloud height was 1,500ft.

"Comic" flying events are rarely particularly comic, but the club made sure of theirs by organising a very pretty piece of buffoonery before the inevitable dragon (an Umawallapiller, in this case) was disposed of, at grave risk to life and limb, by means of flour bombs. Messrs. Morris-Rancy and Hackney-Dowarth were seen to sally forth, complete with horn-rimmed spectacles, huge starting flag and an air of mathematical concentration suitable to the problems involved in starting a one-man race (competitor: Mr. Field Richards). In due time they examined a Moth and flung off items of undisclosed fairing, sundry spare pistons and an instrument panel before settling down, with the aid of a globe, a gargantuan slide-rule and sundry charts. The slide-rule caught fire and was immediately water-cooled by the ever-helpful Hackney-Dowarth, the competitor was started and the Umawallapiller appeared on the scene, chasing the handicappers into a pair of Moths, whence they joined Mr. Field Richards in the attack.

On the control tower : Mr. W. E. Davis is seen at the microphone, while Capt. Duncan Davis (right) and Mr. S. Dupe also appear to be taking an interest in something or other.

By way of an additional turn in the first day's programme, Herr Emil Kropf put up one of his customary shows in an F. W. Stösser. He opened the proceedings, as usual, with a crazy take-off, assuming a quaint power-sideslip attitude almost before he had left the ground. German aeroplanes appear to fly on their sides very willingly.

Herr Förster, who is paying his third successive visit to the Lympne International, was, presumably, to be considered as the star performer from abroad. Flying an F. W. Stieglitz fully equipped for inverted flying and having 150 h.p with which to play, he gave the populace some idea of things of Saturday and even more idea on Sunday. His show was certainly polished and he carried out two fairly unusual manœuvres—an inverted half-loop from ground level and a stalled turn into the inverted position. Additionally, his rolling circuit was of very small diameter, and one of his upward rolls must have been the slowest thing ever.

By contrast, Mrs. Hutton-Rudolph and Ober. Lt. Fischer, from Switzerland, put up remarkably fine shows on 100 h.p. —rather less than is essential for modern aerobatic work. The machine was a Bücker Jungmann in each case, and the many spectators who had never seen performances with either the Jungmann or the Jungmeister were duly surprised, shocked or just thrilled by the particular Bücker version of the flick roll. Full rudder and elevator makes either of these machines kick round as if it has been bitten, yet Ober. Lt. Fischer showed that this flick could be stopped almost instantaneously. Altogether, it was difficult to see how any one of the three aerobatic performances could have been bettered, though Mr. Davis shouldn't have suggested on the loudspeakers that we have no machines strong enough to take that sort of thing. He said it twice.

Popular tastes were satisfied by Mr. De Greeuw on Saturday and by Miss Ray Clark, Mr. Gwynne Johns and Mr. De Greeuw together on Sunday with the aid of a few parachutes. The simultaneous jump was made from three of the Club Tigers in formation; one of the machines flew rather higher than the other two, and its parachutist did a delayed drop, exactly registering his canopy-opening with those of his lower-altitude colleagues.

This, with the other prizes, was given away by Mr. Noel Coward, with moral support from Lady Peel and Miss Ruth Chatterton.

On Saturday evening, after a cocktail party at Mr. Coward's home, the guests went on to a Barbecue dinner and dance in the grounds of Berwick House, the Davis demesne. That it was cheery goes without saying.

The slide-rule goes up in smoke while Messrs. Morris-Rancy and Hackney-Dowarth work out the complicated handicap for a one-machine race.

THE ATTACK on the BRITISH AMBASSADOR

Britain's Note—An Important Document

THE British Note to Japan, demanding an apology for the aerial attack on Sir H. Knatchbull-Hugessen, His Majesty's Ambassador to China, is likely to become a document of great importance as showing the Government's attitude towards aircraft and international law. The matter is discused in our leading article this week on pages 223 and 224.

The text of the Note is as follows:—

The Japanese Government will be aware of the injuries sustained by Sir H. Knatchbull-Hugessen, His Majesty's Ambassador in China, as a result of shooting from Japanese military aeroplanes when motoring with members of his staff from Nanking to Shanghai on August 26 last.

The facts were as follows:—

His Majesty's Ambassador was proceeding from Nanking to Shanghai on August 26 accompanied by the Military Attaché and the Financial Adviser to His Majesty's Embassy and a Chinese chauffeur. The party occupied two black saloon cars of obviously private character, each flying the Union Jack, approximately 18in. by 12in. in size, on the near side of the car, projecting above the roof. At about 2.30 p.m., and about eight miles north-west of Taitsang, *i.e.*, some 40 miles from Shanghai, the cars were attacked by machine-gun fire from a Japanese aeroplane. The aeroplane which fired the machine-gun dived from the off-side of the car at a right angle to it. This was followed by a bomb attack from a second Japanese aeroplane from a height of about 200ft. The Ambassador was hit by a nickel steel bullet (subsequently found embedded in the car), which penetrated the side of the abdomen and grazed the spine.

His Majesty's Government in the United Kingdom have received with deep distress and concern the news of this deplorable event, in respect of which they must record their emphatic protest and request the fullest measure of redress.

Although non-combatants, including foreigners resident in the country concerned, must accept the inevitable risk of injury resulting indirectly from the normal conduct of hostilities, it is one of the oldest and best-established rules of international law that direct or deliberate attacks on non-combatants are absolutely prohibited, whether inside or outside the area in which hostilities are taking place.

Aircraft are in no way exempt from this rule, which applies as much to attack from the air as to any other form of attack.

Nor can the plea of accident be accepted where the facts are such as to show, at the best, negligence and a complete disregard for the sanctity of civilian life. In the present case the facts which have been recorded above make it clear that this was no accident resulting from any normal hostile operation and it should have been obvious to the aircraft that they were dealing with non-combatants.

The plea, should it be advanced, that the flags carried on the cars were too small to be visible is irrelevant. There would have been no justification for the attack even had the cars carried no flags at all. The foreign, even the diplomatic status of the occupants is also irrelevant. The real issue is that they were non-combatants. The aircraft no doubt did not intend to attack His Majesty's Ambassador as such. They apparently did intend to attack non-combatants, and that suffices in itself to constitute an illegality.

It is, moreover, pertinent to observe that in this particular case the Ambassador was travelling in a locality where there were no Chinese troops nor any actual hostilities in progress. No Chinese troops were, in fact, encountered by the Ambassador's party until about an hour's drive from the scene of the attack.

His Majesty's Government feel that they must take this opportunity to emphasize the wider significance of this event. It is an outstanding example of the results to be expected from indiscriminate attack from the air. Such events are inseparable from the practice, as illegal as it is inhuman, of failing to draw that clear distinction between combatants and non-combatants in the conduct of hostilities which international law, no less than the conscience of mankind, has always enjoined.

The fact that in the present case no actual state of war has been declared or expressly recognised by either party to exist emphasizes the inexcusable nature of what has occurred.

His Majesty's Government must therefore request:—

(1) A formal apology, to be conveyed by the Japanese Government to His Majesty's Government;

(2) Suitable punishment of those responsible for the attack;

(3) An assurance by the Japanese authorities that the necessary measures will be taken to prevent the recurrence of incidents of such a character.

Designed for the Weir Engine

THE Oldham Aircraft Construction Company was formed recently in connection with the aviation department of Oldham Welding and Central Motors. The new company has offices and works at Smith Street, Oldham, Lancs., and the first product will be a two-seater monoplane designed around the 50 h.p. 4-cyl. Weir engine.

The new machine, which was designed by Mr. Alfred Payne, at one time connected with the Hillson monoplane, will be a high-wing cantilever monoplane two-seater, with side-by-side seating and dual control. The fuselage, tail, ailerons and flaps will be of welded steel tube construction, while the wing will be of wood. As soon as the first machine has completed its flying tests production will be started. The chief engineer and manager of the company is Mr. A. R. Sarup, who was previously connected with De Havillands and Imperial Airways.

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS

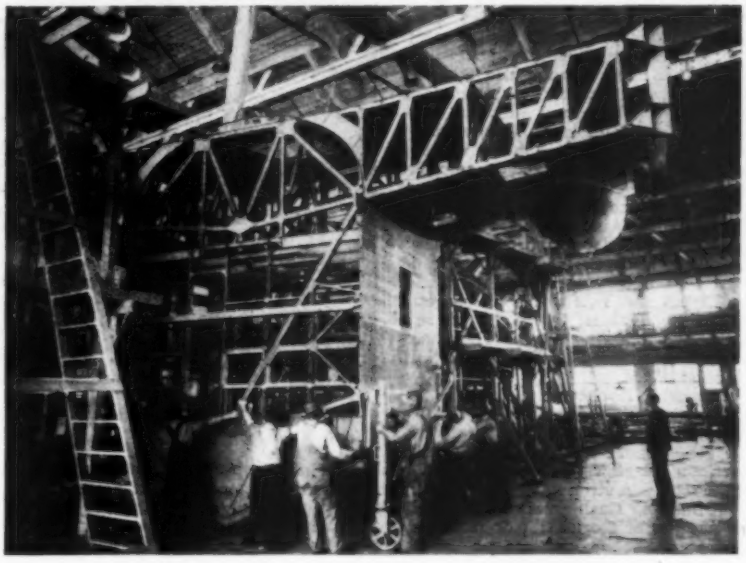
THE latest parachuting record is claimed by a Russian who jumped from an aeroplane at 36,000 ft.

Twenty Focke Wulf training machines have been delivered to the Argentine military authorities, who have acquired the rights to build similar aircraft in the military aeroplane factory at Cordoba.

Signor Mussolini drove to Littorio airport last week to welcome the Italian pilots who took the first three places in the Damascus race. He said: "You are worthy of the gratitude of the Italian Fatherland, of aviation and of Fascism."

The thirteen twin-engined attack monoplanes being built for Service tests with the U.S. Army Air Corps have two G-type Cyclone engines, four guns in the nose, racks for fragmentation bombs in wings and fuselage and a gun over the rear cockpit.

In the will of the late Duchess of Bedford her "aeroplanes, accessories and flying maps" are left to "her air pilot, Flt. Lt. Raphael Preston, or his successor in her employment, or if nobody is so employed, to her grandson, Lord Howland."



(Above) **A CLIPPER TAKES SHAPE: The first of the Boeing Clippers, which will weigh twice as much as a Short Empire boat, is being assembled and should be flying in a few months. This view shows the junction of wing and hull.**

(Left) **DOUGHBOYS IN THE DUST: An elderly Thomas Morse observation machine brings the U.S. Army to its knees during manœuvres. The dust clouds are *not* caused by bullets but are due to the hasty dispersal of the troops.**

A floating service station has been built at Botwood, Newfoundland, by the Shell company for the service of transatlantic flying boats. It was used by *Caledonia* and *Cambria* on their recent flights.

A machine of American manufacture (Beechcraft or Vultee?) is reported to have been blown up last Sunday night in a hangar at Toussus aerodrome, near Versailles. Another machine of similar type was found to contain an unexploded bomb with time fuse.

It is understood that the nineteen Twin-Wasp-engined Bellancas which originally bore the insignia of Air France, but regarding the destination of which no official statement was made, have been shipped to China. The machines are similar to Mollison's *Dorothy* and are said to be capable of 280 m.p.h.

The B.B.C.'s mobile television unit will be at Hatfield for the King's Cup Race. On Thursday, September 9, there will be interviews with some of the pilots taking part, and between 5.30 and 6.15 p.m. on September 11 there will be another transmission, in which it is hoped to include the arrival of the first machines.

Twenty-five Years Ago

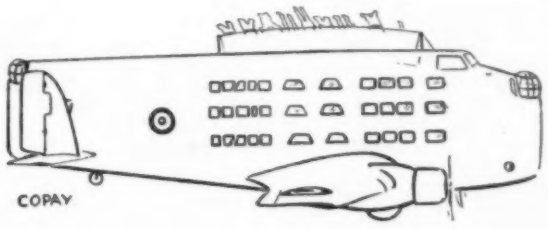
(From "Flight," August 31, 1912.)

"Even to the minds of the most optimistic it must seem almost a work of physical impossibility to overtake the enormous start which France has secured over us. A round million sterling is being spent this year, and 300 machines are being added to the 208 which were in commission at the beginning of the year. In 1913 and 1914 yet another 500 are to be purchased until the French army has at its disposal the enormous number of a full thousand aeroplanes."

THE UNKIND UNTRUTH

(with apologies in all directions)

No. 3. The Armstrong Mansion



AN ATLANTIC HEINKEL

Four Low-powered Engines

FORMULÆ for experimental transatlantic aircraft are becoming increasingly varied. In service at the moment are large flying boats typified by the Short Empire and Sikorsky S.42B. types, catapult seaplanes and flying boats (Blohm and Voss and Dornier) and large landplanes, as exemplified by the Farman Centaur. On test we have the Albatross and the Mayo composite effort; America is building sub-stratosphere landplanes and 80,000 lb. flying boats; France has the revised six-engined Latécoère and a 250 m.p.h. Marcel Bloch landplane; while Germany is hoping for big things from a landplane version of the Blohm and Voss and a low-powered Heinkel monoplane, which is the subject of the following notes. The photograph is reproduced by courtesy of *Shell Aviation News*.

The new Heinkel is distinctly reminiscent of the He.111 twin-engined model.

In general layout the He.116, as the machine is known, resembles the familiar He.111 model, having a slim fuselage of fine aerodynamic form and a low cantilever monoplane wing with the characteristic Heinkel sweep-up at the roots. A striking feature is the sub-division of the power plant into four small units mounted in line abreast on the wing, the nacelles of the inner pair receiving the retractable undercarriage. The engines are of the Hirth HM.508B type—inverted vee-eight type of 240 h.p. each.

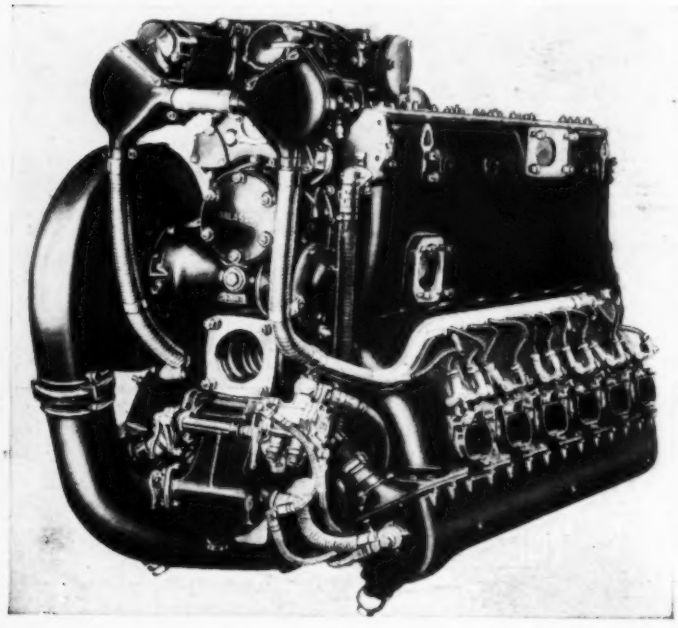
All of which means that, in essentials, the new Heinkel follows the design of our own Albatross, although it has little more power than a D.H.86.

Data are: Span 72 ft. 6 in., length 44ft. 9 in., wing area 677 sq. ft., weight empty 8,543 lb., gross weight 15,763 lb., wing loading 23.35 lb./sq. ft., power loading 16.42 lb./h.p., cruising speed 188 m.p.h., maximum speed 205 m.p.h., range 2,670 miles, landing speed 68 m.p.h.

THE INVERTED MERCEDES

Details of One of Germany's New Power Plants

A NUMBER of new machines designed for the German Air Force have been fitted with the new DB600 inverted vee-twelve liquid-cooled engine, which is the latest product of the Daimler-Benz factory at Stuttgart-Unterturkheim. This unit made its first public appearance at the recent Zurich meeting, where it was seen applied to the successful Dornier Do.17 and Messerschmitt Me.109 monoplanes. Unlike the other engines of the Mercedes-Benz range (720-750 h.p. OF2 and 900-1,200 h.p. LOF6 airship engine), the DB600 uses petrol. There have been rumours of a direct-injection model.



The placing of the centrifugal supercharger is but one of the unorthodox features of the DB600.

The crankcase of the DB600 is a casting of Silumin-Gamma alloy and is strengthened internally by longitudinal and transverse ribbing. Five transverse "walls" carry the main bearings for the crankshaft, which component is forged in one piece. At its front end the crankshaft carries a key for the pinion of the reduction gear; all accessories are driven from its rear end. Two connecting rods work on each crank.

The two cylinder blocks are of Silumin-Gamma alloy with shrunk and screwed steel liners.

The engine can be supplied in two forms: the A-B model is fitted with a ground-level supercharger and the C-D type is supercharged to about 13,000 ft.

Data are: Bore 150 mm., stroke 160 mm., capacity 33.9 litres (in output per litre the engine compares unfavourably with the Rolls-Royce Merlin), compression ratio 6.5:1, length 1,720 mm., width 712 mm., height 1,000 mm.

The normal rated power of the ground-boosted engine is 800 h.p. at 2,200 r.p.m., 900 h.p. being available for "continuous emergency" operation (30 minutes). One thousand horse power is delivered at 2,400 r.p.m. for five minutes. Other figures for the A-B engine are fuel consumption 225-235 g/h.p./hr. and dry weight 1,200 lb.

The C-D engine is rated at 800 h.p. at 2,200 r.p.m., at 13,000 ft., the take-off output being 910 h.p. A fuel consumption of 215-240 g/h.p./hr. is claimed and the dry weight is 1,220 lb.

KING'S CUP CHANGES

Minor Alterations to the Turning Points and Controls : Special Maps for Competitors

SINCE the details were published, with a map of the routes, in *Flight* of April 15, one or two minor changes have been made to the King's Cup Race regulations.

At Skegness, for instance, pilots will make their turn around the seaward end of the pier and not round a mark on Winthorpe aerodrome, which is now disused. At Whitby the turn will be made round the well-known Abbey and not, as originally suggested, round a non-existent castle.

More important are the facts that the control at Dublin has been transferred from Phœnix Park to Baldonnel aerodrome, and that the period of compulsory stop at Cardiff during the final has been increased to forty-five minutes. The first change was only to be expected, since Phœnix Park is not an aerodrome and might, in certain circumstances, provide very real difficulties for the pilots of the faster machines.

These modifications also mean that one or two small changes must be made to the distance figures given in the aforementioned issue. Four miles have been added to the eliminating course and three to the final making these 786.6 and 656.

An additional entry to those given a fortnight ago is that of Mr. Victor Dupree, who has nominated Mr. H. F. J. Broadbent to fly a B.A. Double Eagle with Gipsy Major engines. Mr. Broadbent is already down to fly the same type of machine with Gipsy Sixes, so presumably there is some doubt as to whether the Gipsy Six version can be brought to the line.

As we go to press we learn that Mr. Ken Waller will fly No. 5 in place of F/O. Clouston and Sqn. Ldr. D. Atcherley No. 18 in place of F/O. Quill.

The various turning points will be marked with a white cross, which must be kept on the inside of the turn, except in the case of Skegness, where the pierhead is used, and St. Bees Head, where the lighthouse will form the mark. At each control and at the finish competitors must fly at a height of 300-500ft. between two marking arrows and the period on the ground will be reckoned from that moment. Last year, it will be recalled, the time taken in taxying to the refuelling points was included in the flying time.

As in previous years, the aviation department of the Automobile Association is making up special strip maps for the use of competitors. These are, of course, cut from the standard A.A. and R.Ae.C. quarter-inch general flying maps, which are based on the Ordnance Survey editions. Pilots who own or have used these sets will know that, in addition to the normal markings, special stamps are used to indicate the different facilities at each and every aerodrome, to differentiate between military and civil landing grounds and to show such things as broadcasting stations (with their wavelengths), while all controlled zones are marked and tinted red.

These strips are twelve inches wide and are arranged so that each covers two control points, with an overlap repetition for the following section. Accurate tracks (purple for the eliminating course, and red for the final course) are drawn in, with magnetic courses and distances marked at ten-mile intervals in waterproof ink. The price of the complete set is £10, and, since the strips cover such large areas, pilots should not find that their use is limited to King's Cup practice and racing.

THE KING'S CUP RACE, SEPTEMBER 10 and 11.

No.	Reg.	Class.	Aircraft.	Engine.	Pilot.	Entrant.
1	G-AETK	A	T.K.4	Gipsy Major	R. J. Waight	Viscount Wakefield
2	G-AFAW	A	Miles Hobby	Gipsy Major	F. G. Miles	F. G. Miles
3	G-AFAA	B	Percival Mew Gull	Gipsy Six	Capt. E. W. Percival	Viscountess Wakefield
4	G-AEKL	B	Percival Mew Gull	Gipsy Six	C. E. Gardner	C. E. Gardner
5	G-ACSS	B	D.H. Comet	Two Gipsy Six	K. F. H. Waller	F. E. Tasker
6	G-AEXF	B	Percival Mew Gull	Gipsy Six	Alex. Henshaw	Alex. Henshaw
7	G-AEIN	B	B.A. Double Eagle	Gipsy Six	H. F. J. Broadbent	Victor Dupree
8	G-ADGP	B	Miles Hawk Speed Six	Gipsy Six	Flt. Lt. T. Rose	H. S. Horne
9	G-ADNO	A	T.K.2	Gipsy Major	F/O. G. R. de Havilland	Capt. G. de Havilland
10	G-ADNL	A	Miles Sparrowhawk	Gipsy Major	Wing Cdr. F. W. Stent	Maj. E. Howard
11	G-AEZL	B	Percival Vega Gull	Gipsy Six	F. C. J. Butler	F. C. J. Butler
12	G-AFAU	B	Percival Vega Gull	Gipsy Six	Giles Guthrie	Sir Connop Guthrie
13	G-AEYD	B	Percival Vega Gull	Gipsy Six	Miss L. Dillon and Capt. T. Neville Stack	Miss L. Dillon
14	G-AEZK	B	Percival Vega Gull	Gipsy Six	G. M. Tonge	G. M. Tonge
15	G-AEZJ	B	Percival Vega Gull	Gipsy Six	Derek Schreiber	Derek Schreiber
16	G-AELE	B	Percival Vega Gull	Gipsy Six	A. H. Hole	W. Lindsay Everard, M.P.
17	G-ADVV	B	B.A. Double Eagle	Two Gipsy Six	H. F. J. Broadbent	Victor Dupree
18	G-ABWH	A	Comper Swift	Gipsy III	Sqn. Ldr. D. Atcherley	W. L. Hope
19	G-AECU	B	Short Scion Senior	Four Pobjoy Niagara III	H. L. Piper	H. O. Short
20	G-ABWE	A	Comper Swift	Pobjoy Niagara III	S. T. Lowe	S. T. Lowe
21	G-ACRG	A	B.A. Eagle	Gipsy Major	C. M. McCarthy	C. M. McCarthy
22	G-AAVT	A	Hendy 302	Cirrus Major	C. S. Napier	C. S. Napier
23	G-AEZP	A	Miles Magister	Cirrus Major	Sqn. Ldr. E. C. T. Edwards	C. S. Napier
24	G-AENG	A	Miles Falcon	Gipsy Mk. I	Wing Cdr. E. G. Hilton	Wing Cdr. P. Sherren
25	G-AEZO	A	Miles Whitney Straight	Gipsy Major	Brig. Gen. A. C. Lewin	Brig. Gen. A. C. Lewin
26	G-AEVH	A	Miles Whitney Straight	Gipsy Major	Sqn. Ldr. A. V. Harvey	Sqn. Ldr. A. V. Harvey
27	G-AEWK	A	Miles Whitney Straight	Gipsy Major	E. J. Jobling-Purser	E. J. Jobling-Purser
28	G-AEMA	A	C. W. A. Cygnet	Gipsy Major	C. Hughesden	J. I. Waddington
29	G-AEZZ	A	Wicko	Cirrus Major	Flt. Lt. H. R. A. Edwards	C. S. Napier
30	G-ADID	A	B. A. Eagle	Gipsy Major	C. H. Willis	W. C. Potter
31	G-AEST	A	Moss-Monoplane	Pobjoy Niagara III	W. H. Moss	W. H. Moss

Classes : A = Up to 150 h.p. B = Exceeding 150 h.p.

Two Books on Models

"Petrol-Engined Model Aeroplanes," by C. E. Bowden; 3s. 6d., Percival Marshall and Co.

NO man is better qualified than Capt. Bowden to write about petrol models, for he was responsible for their modern revival, sponsored the tiny engines which spelt success, designed and built 20 petrol models, including Autogiros and flying-boats, and held the British record for five years. His vast experience is comprehensively and readably incorporated in his book, which includes several successful designs. It should be invaluable to those about to build, and of interest to all modellers.

"The Design and Construction of Model Aircraft," by D. A. Russell, A.I.Mech.E., A.I.E.E., 5s., Harborough Publishing Co.

Mr. Russell's viewpoint is that trial-and-error methods should give place to scientific calculation, particularly with large models. He discourses thoroughly on such matters as the boundary layer, trailing-edge vortices, performance calculations, etc., and includes numerous formulæ and the results of his wind-tunnel experiments. Even the non-mathematically-minded can find value and interest in this book, though one trusts that they wil not allow themselves to be discouraged from model aeronautics if they fail to follow fully the explanations given.

M. R. K.

HERE and THERE

R.Ae.S. Weybridge Branch Inaugurated

IT is announced that the Council of the Royal Aeronautical Society has approved the formation of a Weybridge (Surrey) Branch of the R.Ae.S. under the chairmanship of Mr. F. Holliday, B. Sc., A.R.Ae.S. Its meetings will be held at Vickers' Works, by permission of Vickers' (Aviation), Ltd.

The branch already has some 140 members, many of whom are apprentices under training at the works, though membership is, of course, open to any person interested in aeronautics.

The inaugural lecture will take place on Wednesday, October 6, when Capt. J. Laurence Pritchard will read an address entitled "Bird Flight in its Relation to the Aeroplane." Admission to this and to future lectures (which will be announced in the Forthcoming Events column of *Flight*), will be by membership card or by invitation issued by the committee.

In addition to lectures, arrangements are being made to provide a channel for members' interest in gliding, model aircraft and allied activities, while it is also hoped to arrange various sporting fixtures.

Full details are obtainable from the hon. secretary, Mr. M. W. Wood, A.F.R.Ae.S., at Vickers' (Aviation) Ltd., Weybridge.

Carden Engines

CHILTON AIRCRAFT, who are developing a very interesting little low-wing single-seater, have taken over the stock and effects of Carden Aero Engines and are continuing the manufacture of these units. For the present, at least, these will be available for other users at the previous price, and a few minor modifications are being incorporated.

A "Pusher" Two-stroke

IN *Flight* of March 11, 1937, was published a brief description and a photograph of an interesting experimental two-stroke four-cylinder in-line air-cooled engine of 500 c.c. capacity. It has now become permissible to disclose the fact that the designer of this engine is Mr. C. F. Caunter, who will be remembered as a two-stroke enthusiast of many years' standing and the author of, among other works, the book entitled *Small Two-stroke Aero Engines*.

The latest news about the Caunter two-stroke is that it is being fitted into a new two-seater pusher cabin machine which is now in course of construction. The new machine is expected to be finished and flying towards the end of the year.

In addition to the four-cylinder "B" type engine already described in *Flight*, Mr. Caunter has designed an inverted model, which he calls the "C" type. This will be of 60 b.h.p. and will have certain advantages compared with the "B" model, particularly in the matter of view for single-engined installations. A single-cylinder test unit has been built into a motor cycle frame, and has given very good results, so that Mr. Caunter feels confident that he has "got all the bugs out" of the design, and that no troubles are likely to be encountered in the larger engine. We hope to publish something in *Flight* about the model "C" shortly.

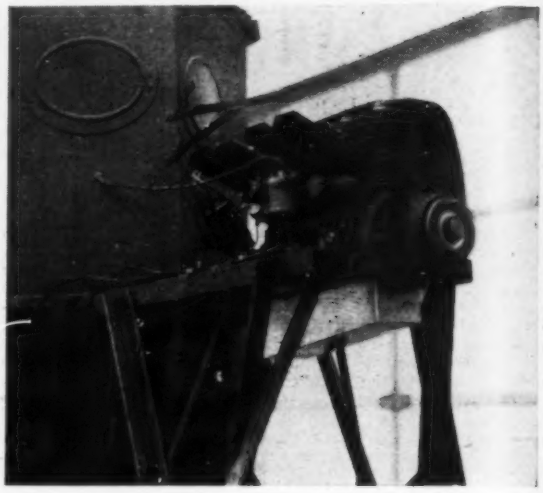
A Bomber's Cockpit

IN the photograph of the cockpit of the Handley Page Harrow which appeared in last week's issue, the flap operating gear should have been attributed to the Automotive Products Company. Also, it should, perhaps, have been made clear that the controls for the Hobson carburettor were of the French "Bloc-Tube" type.

The Moving Finger

BEST known to the aeronautical world as the makers of the Cambridge Mixture Indicator, or exhaust gas analyser, the Cambridge Instrument Co., Ltd., have recently published a brochure which describes their extraordinarily wide range of other aeronautical instruments.

These include (a) thermometers, pyrometers and thermocouples for recording temperatures in various parts of the engine; and (b) various aerodynamic research instruments. This latter group embraces a statistical accelerometer, for determining the actual number of positive or negative stresses that arise in an aircraft due to bumps, control movements, etc.; an accelerometer and air-speed recorder, providing simultaneous records of air speed and of accelerations measured along any desired axis; De Forest scratch extensometers—small instruments for general stress-measuring; a portable vibragraph; wind-tunnel balances; reaction chronograph for use with the Reid pilot's aptitude tester; the McCurdy-Farren pilot tester;



The Caunter two-stroke, mentioned on this page, on test.

airship strain meters, with remote recording, for measuring tension or compression in wires and girders; fabric permeameters, for testing the permeability to hydrogen of fabrics used in balloon construction; and a porosity meter for parachute fabric testing.

The pamphlet is obtainable from the Cambridge Instrument Co., Ltd., at 45, Grosvenor Place, London, S.W.1.

Some Damascus Race Echoes

THE average take-off time of the triple-Pegasus Savoia Marchetti S.79s was 11½ seconds. Unlike the prototype, these machines did not have Handley Page slots, but made full use of their flaps.

* * *

It was noticed that the Italian Savoias, which, like the Comet, took off after dark, were fitted with flashing tail lights.

* * *

The twin-engined Fiats, powered with eighteen-cylinder two-row radials, were very fast. These machines were operating on 100-octane fuel.

* * *

The Comet met with a slight contretemps just before the start, when Nelson, Clouston's navigator, put a foot through one of the wing fillets. The authorities very sportingly allowed twenty-five minutes for a hasty patching up.

* * *

On the day before the start the sleek Hispano-engined Amiot, which might have shown the Savoias a clean pair of heels had it been ready in time (deliberate scratching for political reasons was rumoured), made a test flight and was generally admired.

* * *

France's two four-engined hopes—the Marcel Bloch and the Farman—were very heavily loaded. Mr. Cross, of Essex Aero, Ltd., who was at Istres ministering to Clouston's *Orphan*, estimates that the Bloch took about ⅞ mile to get off. The Farman, which, incidentally, is the prototype of a new heavy bomber, and which differs very considerably from previous models built to the same formula, was carrying 12,000 litres—about 2,640 gallons—of fuel.

* * *

The Comet which finished fourth is up for sale or partnership. This machine, which is now fitted with two Series II Gipsy Sixes driving D.H. v.p. airscrews, won the England-Australia Race in 1934, and was subsequently purchased by the Air Ministry. Recent improvements which have been incorporated were listed in a description which appeared in *Flight* of August 19. Some idea of the range of the machine may be gathered from the fact that at the finish of the Damascus race, after a 2,340-mile hop during which Clouston lost himself for twenty-five minutes over the Alps, sixty gallons were left in the tanks. *The Orphan*, as the machine was christened for the Damascus event, has been entered for the King's Cup Race by Mr. F. E. Tasker. It is being cared for by Essex Aero, Ltd., of Gravesend Airport.

R.A.F. UNIT BADGES

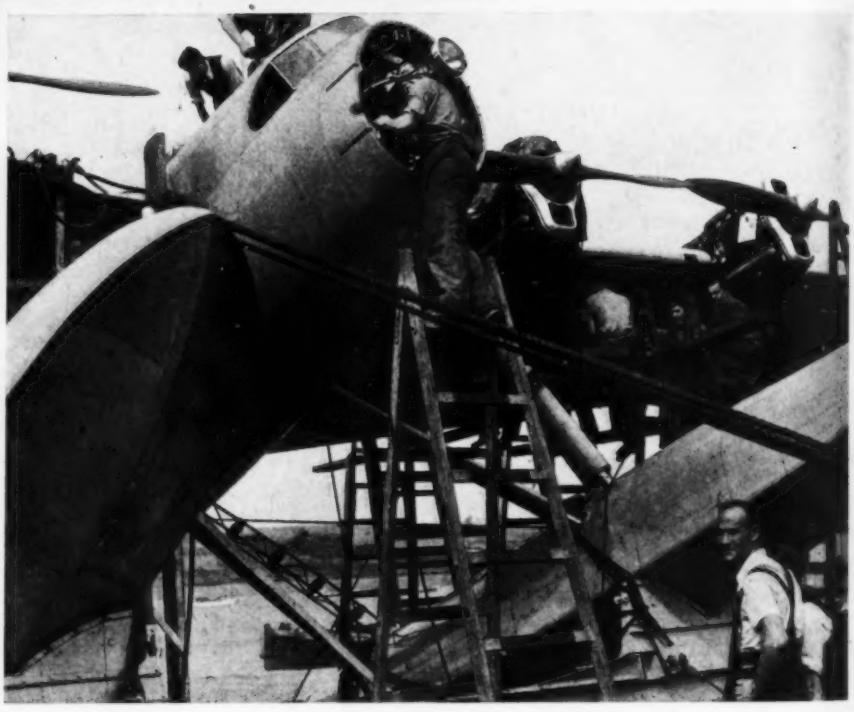
Twelve Further Designs

A further set of R.A.F. unit badges has been approved by His Majesty the King. Chester Herald's description of the badges, which are reproduced on this page, is as follows :—

No 2. Flying Training School : A winged torch No. 29 (Fighter) Squadron : An eagle in flight preying on a buzzard. No. 32 (Fighter) Squadron : A hunting horn stringed. No. 38 (Bomber) Squadron : A heron volant. No. 49 (Bomber) Squadron : A greyhound courant. No. 65 (Fighter) Squadron : In front of fifteen swords in pile, the hilts in base, a lion passant. No. 57 (Bomber) Squadron : Issuant from two logs fesswise in saltire a phœnix. No. 66 (Fighter) Squadron : A rattlesnake. No. 84 (Bomber) Squadron : A scorpion. No. 104 (Bomber) Squadron : A thunderbolt. No. 151 (Fighter) Squadron ; On a hurt an owl affrontee wings elevated alighting on a seax. No. 269 (General Reconnaissance) Squadron : An ancient ship in full sail.

LAUNCH of the MERCURY

Upper Component of Composite Aircraft Ready for Flight Trials



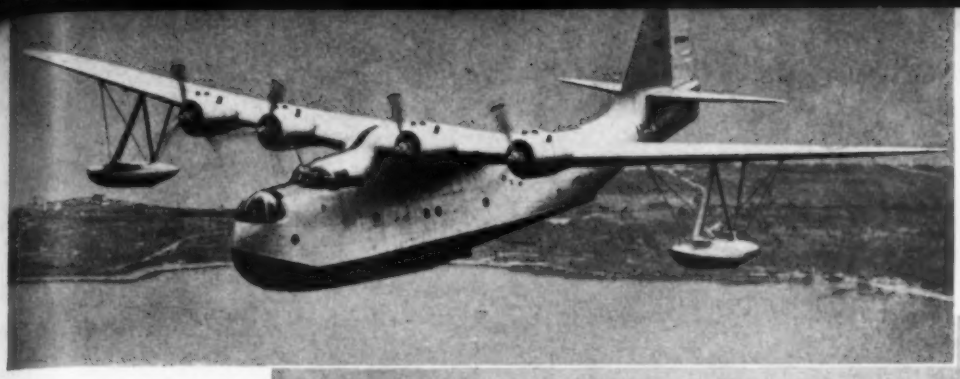
EVERY day now sees progress towards the interesting experiment of launching one seaplane from the back of another during flight. *Mercury*, the upper component of the Short-Mayo composite aircraft, was launched on Wednesday of last week and has been running engine tests. As soon as these are completed Mr. Piper will begin the series of test flights which will ultimately culminate in the great experiment of separation. First, however, *Mercury* will go through extensive tests of its own, loaded up to what is a reasonable gross weight for an aircraft of this size, but not, of course, to the gross weight of 20,000 lb. or so which the machine will weigh when carrying fuel for the Atlantic flight.

Mercury is driven by four Napier Rapier engines of approximately 350 h.p. each, and with a pay-load of 1,000 lb. and a still-air range of about 3,500 miles, it is expected that the cruising speed will be in the neighbourhood of 160-165 m.p.h.

Had the machine been designed as a landplane, a considerably greater speed could have been attained, but Imperial Airways wanted a seaplane, as there are no aerodromes in Bermuda, and it is likely that the machine will be used for experimental flights to there and other places at which a landplane could not be used.

Even as a seaplane, *Mercury* is, as the photographs show, a very clean machine. Its similarity to the Short Scion Senior is unmistakable, and many of the special features, such as the new type of Gouge flaps, were actually tried out on an earlier Scion before being adopted for the Empire boats and for *Mercury* and *Maia*, as the upper and lower components of the composite aircraft are called.

Structurally, *Mercury* is of all-metal construction, including the stress-bearing skin of wing and fuselage. As the normal take-off requirements do not apply to *Mercury*, it is likely that it will receive a C. of A. for a gross weight of at least 21,000 lb., which will give a wing loading of rather more than 34 lb./sq. ft.



Trials of the New U.S. Navy Sikorsky : Cantilever Wing and "Full-depth" Hull

PATROL BOMBER

THE marked resemblance of the new Sikorsky XPBS patrol bomber to our own Short Empire type of flying boat is an instance of how the design of such large boats is being directed, inevitably, into less mutable channels. Despite this affinity, the craft is essentially Sikorsky and is obviously a scaled-up and cleaned-up development of the successful S-42 model, the latest version of which is being used by Pan-American Airways for experimental transatlantic operation.

According to the manufacturers, the XPBS "will afford the Navy Department an opportunity to compare the relative value as a National Defence weapon, both from a tactical and engineering viewpoint, of the large four-engine type and the smaller twin-engine type." The latter is exemplified in the Consolidated PBY boats now in extensive use.

The new Sikorsky, which has four Pratt and Whitney Twin Wasp engines, has been under construction for more than two years. It is said that the mock-up alone, constructed of wood and fabric, took six months to complete.

Those who have made long cruises in some of the older types of Service flying boats will be interested to learn that the XPBS is soundproofed throughout. Equipment includes a mechanic's workshop, a galley with electric stove, water distiller and dry ice refrigerator. Provision is made for the carriage of beaching gear.

The armament includes bow, midships and tail gun turrets, the tail position being of exceptionally neat design.

An innovation is the installation of a complete 110-volt electrical system with an auxiliary petrol engine.

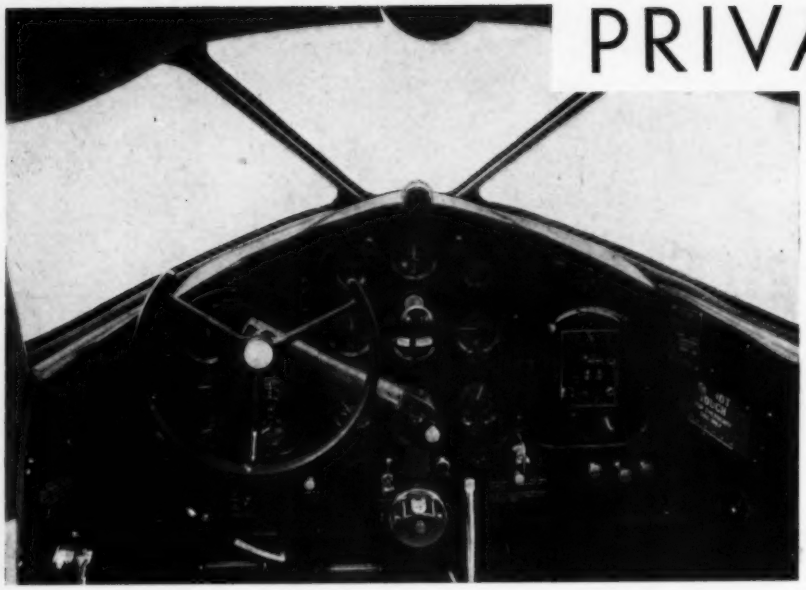
It may be significant that the wing-tip floats are not retractable as in the new Consolidated flying boats which have found such favour with the U.S. Navy. Obviously, the shape of the wing, the outer sections of which have a sharp taper, does not lend itself easily to float retraction.

In accordance with the U.S. Navy's policy with regard to prototypes, performance figures are being withheld, but it is safe to assume that the maximum speed of the XPBS lies very close to 200 m.p.h.

Points which must have raised some problems in the design stages, due to the high-wing arrangement, are bomb stowage and methods of loading.

The new Sikorsky is much more eyeable than the S-42 model, due not only to its greater aerodynamic cleanness but to the shape of the wing and hull.

PRIVATE FLYING



AS IT SHOULD BE : We in this country can certainly learn something from America when it comes to making instrument boards look as if they are designed from the start and for the job. This is the panel of the Fairchild "45" low-wing luxury private-owner type (handled by Malcolm and Farquharson of Heston) fitted with the new Fairchild radio compass. At the top of the centre panel is the indicator, on the right is the remote control panel and (lower corner) the rotator control. The majority of the other instruments speak for themselves. The "45" carries five people at a cruising speed of 173 m.p.h.

Topics of the Day

Navigation Competition

IF I happened to be a very rich man I should by now have chartered a large transport machine carrying a crew of four and fitted with all known aids to air navigation for the purpose of flying in the King's Cup race. I should also be praying every night for reasonably bad weather on the days of September 10 and 11.

Probably my efforts and expenditure would have been unavailing, because the organisers will, undoubtedly, postpone the affair if the weather is likely to be at all bad. And, from my small experience of the Cumberland, Cheviots and Grampians areas, the possibilities of a clear day's run for the eliminating race seem to be very remote. If the organisers take a chance on a doubtful weather report, the race will go to the very daring or very skilful.

Personally, I think the route is a bad and dangerous one, and that the mixture of speed and handicap racing is just plainly silly. Perhaps, if I had been a member of the Racing Committee of the Royal Aero Club I should have been unable to think of anything better. But, I'm not, and can, therefore, hiss with a clear conscience.

The Sea and the Mountains

ALTHOUGH every effort has been made to cut out sea crossings, there are, in fact, about 250 miles of water in the 1,400 miles of the two days' courses. The longest stretches are those between Whitby and Newcastle and between St. Bees Head and Blackpool.

Admittedly, the tracks, for the most part, lie quite near to land, but the majority of the competitors will be flying at zero altitude and a dead cut ten miles from land in such circumstances is a fairly serious matter. However, this is racing, not sampler-work.

My criticisms of the course are not concerned so much with possible danger as with the probable need for postponement in order to keep the risks within reasonable limits. Furthermore, it seems that what was once a race is now a navigation competition—very excellent, but we might have a race as well, some other time.

I don't know who will make the final decision on either of the two days if the Met. Office's forecasts are not very promising, but I should hate to have to take the responsibility. From Woolsington to Macmerry, Dyce to Renfrew, Portpatrick to Carlisle and southwards there are charming little outcrops rising to 2,600ft. on or near the tracks. The pilots can go round by the flat parts? Obviously they can, but all of them will know that one or more of the other competitors will be saving a winning hour by taking a chance on a turn indicator and a little D/R.

Of course, it is the enthusiast's privilege to grumble at everything and everybody, and it is impossible to organise any race or competition so that everyone is pleased. Even if this were possible there would still be the handicappers to lynch. Furthermore, Governments and governing bodies are considered as fair game by all. In nearly all sports and pastimes the governing bodies concerned are thought of by the rank and file as a bunch of impractical old gentlemen with a keen sense of their own dignity and importance. Such mutinous thoughts seem to be inevitable, but I do not think that the same sort of criticisms can be levelled at our own particular body—even if its permanent representative *does* burst your eardrums in answer to some timid enquiry on the telephone.

Homing Home

FROM time to time I have felt a little guarded enthusiasm for radio receivers and homing devices as aids to private-owner navigation. Careful organisation will, of course, be necessary in their use if we are not to have amateurs hooting about the country in conditions of no visibility and at grave risk to life and limb. But, motorists generally obey the rule of the road and the traffic signals, so I can see no reason why pilots should not be capable of similar discipline.

Some idea of the sort of thing which might eventually be possible is provided in the *Notice to Airmen* describing Croydon's new medium-wave beacon. This transmits four equi-signal beams, with dash and dot sectors intervening. Nothing is required except a receiver and earphones so long as the pilot has a compass and some general idea of the position of the aerodrome.

Needless to say, any owner who uses this particular beacon in conditions which merit such use will deserve to be shot at dawn, but similar beacons might eventually be installed at certain specified aerodromes. Rules for their use could surely be formulated so that risks would be small and so that transport machines, and others not actually coming in, could travel with safety above a certain predetermined height level. If the conditions were bad enough to provide the possibility of collision, the beacons would, in any case, only be used for emergency approaches. No one really likes flying in QBI conditions. For the rest, they would merely be a help and a comfort.

INDICATOR.

FROM the CLUBS and SCHOOLS

LONDON

THE flying times for the week ended August 28 were 122 hr. 55 min. Mr. D. Balfour completed the tests for his "A" licence and Mr. I. Kindersley made a first solo.

HANWORTH

Three of the club's aircraft were hired to attend the Lympne Rally and several charter trips have been carried out during the week. A total flying time of 105 hr. 35 min. was recorded.

PORTSMOUTH

The Club now possesses one Hawk Major, two Moth Majors, one Gipsy I Moth, and an Aeronca, which, though privately owned, is available for use of approved members. These aircraft contributed to last week's total of 22 hours.

SOUTH COAST

A flannel dance was held last Saturday and was attended by over 90 members and their friends. Mr. Houston Russell, the artist, has decorated the bar with a series of caricatures of members—in spite of which "counter" attractions 39 hours' flying have been recorded.

NEWCASTLE

Solo flying was largely responsible for the week's total of 46 hours. Cross-country flights were made to Carlisle, Heston and Plymouth. Messrs. M. A. and F. Harvey completed "A" licence tests. The B.A. Swallow is now back in service after a C. of A. overhaul at Carlisle.

HERTS AND ESSEX

"A" licence tests were completed by Messrs. Pettit, Brymer and Parbury, and Messrs. Sweeting, Lee, Chase and Aldous made first solos. Mr. Bernard Collins was a successful candidate for the instructor's endorsement. A total of 156 hours was logged for the fortnight ended August 28.

SOUTHEND

Mr. Alan Villiers, the author, has forsaken wind-jammers for aeroplanes and made his first solo flight last week. Other soloists were Mr. James McGill (aged 17)—on Saturday, after joining on Tuesday—and Mr. H. Da Costa. Attention is drawn to the seventh annual At Home, to be held next Saturday, September 4. A programme of aerobatics and competitions has been arranged, and a dance is to be held in the evening.

HYDERABAD

There has been a drop in the flying times during the month of July owing to the strong winds, 61 hr. 30 min. being logged. Viscount de Sibour landed his Dragon at the aerodrome on July 7 from Trichinopoly and left for Nagpur the following day. On July 27 Messrs. P. M. Reddy and E. K. Jassavala flew to Madras via Cuddapah and then to Bangalore, returning to Hyderabad via Bellary the next day. Mr. N. Vincent, who was on a short visit to Hyderabad, completed his blind-flying test. Lt. Chaytor secured his "A" licence and Mr. Chinoy made his first solo.

JOHANNESBURG

At a Dawn Patrol at Baragwanath on Sunday, June 27, 12 defenders opposed 20 attackers. Nine members entered the Johannesburg-Durban air race, and a second place was obtained by Mr. Uys in the inter-club competition. It has been decided to hold regular competitions on the first Sunday in every month, and the De Havilland Company has kindly consented to present a cup for each. Mr. R. Stewart left the service of the club at the end of June to take up an appointment with S.A. Airways, and Mr. D. Longmore returns to England at the end of September. "A" licences were obtained by Messrs. Flax, Smith and Dove.

STRATHAY

A total of 30 hours was returned for the week ended August 22. Mr. W. H. Byars made his first solo. New members include Master Edward Hunter and Miss E. L. Corke.

BORDER

Owing to staff holidays the club is closed for a fortnight, during which period Mr. Livingstone-Bussell is making a tour of the South of England in the Hornet. Mr. S. H. Langston has joined the club.

YAPTON

Flying times for the week ended August 28 were 62 hours, the weather being very good. Messrs. J. Parker, J. Lishman, A. J. Whittemore and N. M. Solomonides carried out first solos and "A" licence tests.

MARSHALL'S

A great deal of blind-flying practice and cross-country work has been done by candidates for "B" licences. Gravesend, Reading and Norwich were the main ports of call. Flying times for the week totalled 64 hr. 40 min.

YORK AND LEEMING

Flying for the month to August 20 amounted to 151 hr. 5 min., cross-country flights being made to Redcar Southampton and Leamington. Mr. Raine is a new member. A very enjoyable treasure hunt by car was organised by Mr. L. O. Madden.

C. A. S. C.

Flying activity was rather handicapped by morning clouds at Cambridge but members managed to put in 4 hr. 20 min. on Sunday, August 29. Two members took the Gipsy Moth to Gravesend for a C.A.S.C. conference. Nine hours were flown at Gravesend.

CASTLE BROMWICH

During the last fortnight cross-country flights were made to (among other places) Southend, Shoreham, Witney, Porthcawl and Wolverhampton and a total flying time of 76 hours was recorded. Messrs. N. M. Simpson and W. Foster have completed their "A" licence tests.

BENGAL

It is with regret that the club announces the death of Mr. M. N. Kanjilal, who passed away on July 28. He was a founder member, and deep sympathy is offered to Mrs. Kanjilal in her bereavement. Three weeks of good flying weather established a total of 81 hr. 25 min. in the air with one machine during July. Mr. S. Mallik, from England, joined the club and passed his requalification tests for an Indian "A" licence. The membership now totals 215.

The Instructional Season

IN last week's issue was recorded the performance of a young man who celebrated his seventeenth birthday by carrying out his three hours' solo and his "A" tests all in one day at Brooklands.

This time there is another instructional semi-record to report. About three weeks ago Mr. Peter Fry called on Mr. Munday, the British Aircraft director of sales, and stated that he wished to learn to fly. After 4 hr. 10 min. dual in a Swallow with Mr. Munday he flew solo. Other people have gone solo after slightly shorter periods of dual—we know of a three-and-a-half-hour case (he is now a transport pilot)—but the under-five-hours people can probably be counted on two hands. Flying nowadays should be much easier—our three-and-a-half hero learnt on a Cirrus I Moth.

Forthcoming Events

August 3-September 7. Public Schools Aviation Camp, Norwich.
August 28-September 25. B.G.A. National Soaring Competition, Great Hucklow.
September 4 and 5. Southend Flying Club: At Home.
September 10-11. R.Ae.C.: King's Cup Race.
September 18. North of Ireland Aero Club: Ulster Air Rally, Newtownards.
September 18. Eastbourne Flying Club: At Home.
September 23. Aero Golfing Society: Cellon Trophy.
September 25. South Coast Flying Club: Annual Dinner and Dance, Grand Hotel, Brighton.
October 6. R.Ae.S. (Weybridge Branch) Lecture: "Bird Flight," by Capt. J. Laurence Pritchard. Vickers Works, 6.15 p.m.
October 14. R.Ae.S. Lecture*: "The Hafner Gyroplane," by Mr. R. Hafner.
October 21. R.Ae.S. Lecture*: "Practical Airscrew Performance," by Mr. F. M. Thomas.
November 4. R.Ae.S. Lecture*: "Problems of High-Speed Flight as Affected by Compressibility," by Mr. C. N. H. Lock.
November 18. R.Ae.S. Lecture*: "The Take-off Problem," by Mr. H. F. Vessey.
December 2. R.Ae.S. Lecture*: "Wing Surface Controls with Reference to Possible Developments in Flying Technique," by Flt. Lt. H. P. Fraser.
December 16. R.Ae.S. Lecture*: "Development of Sailplanes," By Sqn. Ldr. G. M. Buxton.

1938.

January 13. R.Ae.S. Lecture*: "Radio as a Direct Aid to Landing Approach," by Sqn. Ldr. R. S. Blucke.
January 27. R.Ae.S. Lecture*: "Electrical Ignition on Aero Engines," by Dr. G. E. Bairstow.
February 3. R.Ae.S. Lecture*: "Recent Research into the Aerodynamic Characteristics of Aircraft," by Mr. E. F. Relf.
February 17. R.Ae.S. Lecture*: "The Maintenance of Civil Aircraft," by Mr. H. L. Hall.

* All these lectures take place at the Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, beginning at 6.30 p.m.

Private Flying

AN ANGLO-GERMAN GLIDING CAMP

Fraternal Fortnight at Dunstable

THE visit of some two dozen young German glider pilots to Dunstable Downs, the headquarters of the London Gliding Club, during the last fortnight in August provided a welcome opportunity for English gliding men to make some return for the hospitality extended to the British team at the recent international soaring competitions in Germany. The visit was arranged by the Anglo-German Circle, who have for some years been organising "work camps," both in England and in Germany, where young people of both nationalities can meet and establish contacts. Last year, as an experiment, a camp was held in which gliding training was substituted for the usual manual labour which had served as an occupation at previous camps. It was held in Germany, and was so successful that this year it was decided to try holding a similar camp in England.

The German members of the camp had been chosen from the Hitler Youth and similar organisations. About half of them had not yet reached the soaring stage of their training, while of the other half three were so far advanced to have already earned the international "Silver C" certificate, for which flights of 50 kilometres distance, 1,000 metres climb and 5 hours duration are required. Flights of 5 hours towards their "Silver C" were made by three more of the Germans during the camp but facilities for cross-country flying on club machines could not be arranged. However, instructional work proceeded with so much energy that 12 "A" and 15 "B" gliding certificates and 6 "C" soaring certificates were qualified for among the 40 British and German pupils attending the camp.

By the greatest good fortune a spell of almost continuous westerly winds coincided with the first week of the camp, and the soaring pilots among our visitors greatly enjoyed the novelty of flying over foreign hills, especially when they could get as far along the Downs as Whipsnade and look down on the Zoo from about 200 ft.

From Sunday, August 15, to Sunday, August 22, inclusive, 178¾ hours of soaring were done over the club ground, easily a record for such a short period. It is true that other club members, outside the camp organisation, contributed to this total. Having their own machines, many of them took the opportunity to make cross-country flights, and their efforts resulted in another record figure being achieved; within a week 450 miles were covered in cross-country flying.

Mr. Phillip Wills led off on Sunday, August 15, with the longest distance soaring flight of the year, going 98 miles to Dover. It was the first time a landing had been made south of the Thames, though there have been many previous attempts to get into Kent. The difficulty has always been the lack of thermal currents over the damp ground adjoining the Thames estuary. But on this day, for some reason, the pilot found specially good lift all the way from Purfleet to Tilbury, crossed the river at Gravesend, and continued across Kent till he reached the coast near Lympne with 4,500 ft. to spare. With the help of a strong tail wind this should have enabled the Channel crossing to be made; but an attempt by Mr. Wills to get a little more lift from another cloud, before setting off across the water, unfortunately resulted in his Hjordis sailplane losing height instead, so he had to come down on the English side after all.

For the first part of his journey Mr. Wills was accompanied by Mr. Cristopher Nicholson in the Rhönsperber sailplane, but the latter lost the thermals after a time and, finding himself over Hendon aerodrome, landed there rather than go on to a risky landing among the northern suburbs of London.

Other notable flights, of up to 45 miles, were made by a number of members.

The Second Week

The second week of the Anglo-German camp was, in the absence of soaring winds, devoted to elementary training and visiting places of interest.

Towards the end of the week there was some excitement when Herr Wolf Hirth, the German soaring pioneer, arrived over the club ground in his Klemm with a two-seater Minimoa sailplane in tow, piloted by Fräulein Eva Schmidt. They had flown thus from the Hornberg gliding school, near Stuttgart, spending two nights on the way, with stops at Croydon, Brussels and Lympne. Next evening Fräulein Hanna Reitsch, the famous woman glider pilot who was made a captain in the German Air Force, flew over from Germany by aeroplane and visited the camp.

Finally the Germans were all taken to Derbyshire in motor coaches to spend the week-end seeing the commencement of the British national soaring competitions at Great Hucklow. They are then to spend two days in London before going home, and will be entertained by the Royal Aero Club.

The Artillery in the Air

ALTHOUGH the weather at High Post on August 21 was, apart from a fairly strong N.W. wind, reasonably good, the conditions in some of the Home County areas was such that a number of possible arrivals must have been turned back. We, ourselves, endeavouring to make the best of a bad job from the North London district, were forced to return to Hatfield.

However, about a hundred members and guests attended the opening meet of the Royal Artillery Flying Club, and they included Maj. Gen. A. F. Brooke, C.B., D.S.O., Maj. Gen. A. P. V. Langhorne, C.B., D.S.O., M.C., and Brig. Gen. H. R. S. Massy, D.S.O., M.C., the chairman of the club. Lt. Col. W. E. Duncan and Mrs. Duncan, Capt. J. S. Wilkins and Lt. P. R. Waterfield flew to the meet, the first two carrying a son each as passenger.

There were two competitions for members with less than fifty hours' flying to their credit—the first for pin-pointing and message-dropping, and the second for landing.

The results of these two events decided the winner of the R.A. Flying Club cup, who was, in fact, 2nd Lt. A. Acland. The Wiltshire School of Flying presented another cup for landing style and this was also won by 2nd Lt. Acland.

The club machine, a Swallow, was on view and was used for an open height-judging competition, which was won by Maj. Foster with Mr. Collins as runner-up.

Coupe Deutsch Cancelled—but 1938 Rules Issued

THERE will be no Coupe Deutsch Race this year. Originally seven machines were entered for the event, which was fixed for September 12, but the five Caudron entries were cancelled a couple of months ago. The two remaining machines were Lignels. One of these was damaged in a recent test flight, and the second is said not to have come up to expectations, so this entry, also, has now been cancelled.

Meanwhile, and optimistically, regulations for the 1938 Coupe Deutsch have been issued. They reveal an interesting innovation in that the engine capacity is reduced from the present maximum of 8 litres to 6½ litres. Mlle. Suzanne Deutsch de la Meurthe, the donor of the prizes, has stated that the 100,000 francs cash prize which would have been awarded to the winner this year will be added to the 1938 prizes, which will thus total 200,000 francs.

THE FAIRCHILD IS HERE

Flying the Ranger-engined Version of the "24" : An Excellent Compromise from America

THE majority of us hold certain quite definite (but dissimilar) ideas about the perfect machine for everyday flying by the amateur pilot who wishes to make reasonably extensive use of the air.

As an example, my own "ideal" specification stresses features such as a good take-off and a steep, fully adjustable approach (for safe operation in and out of small aerodromes), coupled with a really useful range and the sort of cabin accommodation which provides both actual and visual comfort. Speed above a certain reasonable minimum for dealing with headwinds appears to me to be an overrated virtue unless a machine is to be used for very long distance or competition work. Few people, in any case, appear to know what to do with the odd quarter of an hour which may be saved on a normal journey by a fast aeroplane, and travelling is usually more fun than arriving—provided that we do not not suffer from control cramp.

Needless to say, the average aeroplane designed for the use of the private owner is an unholy compromise—stress being laid on certain features according to the particular opinions held by the manufacturer. In America power has been laid on without stint (fuel being cheap), not so much to provide great speed as to enable a sort of car body to travel through the air with reasonable swiftness. Over here we have had to do our best with engines of comparatively small power, and cabin space has necessarily been somewhat restricted to some extent.

Last week, by courtesy of Malcolm and Farquharson, of Heston, I had a chance of flying one of the new Fairchild "24s" with a six-in-line Ranger engine, and it appeared to me that here was an almost perfect Anglo-American compromise. The machine has all the rigid stability (particularly in the fore-and-aft plane), and the interior comfort which one has learnt to expect in American types, yet it should not cost too much to operate. The 150 h.p. Ranger engine, in fact, uses a little less than nine gallons of fuel in an hour's flying at cruising power, and the machine carries three people in considerable comfort with a reasonable amount of baggage. This engine is specially designed for reliability and long service. With the lighter and more efficient Warner Super-Scarab, the "24" carries four people and their luggage.

There is nothing particularly startling about the performance of the Fairchild. I found that at 2,100 r.p.m. the machine cruised comfortably at 120 m.p.h. It is simply a good, sturdy, viceless and comfortable means of private transport, which is what most people require.

Properly trimmed, it will take itself off, though the run is shortened if the tail is forced off the ground during the process of acceleration. In the air it will fly by itself and will turn accurately on either rudder or ailerons if the movements are made with reasonable caution. It is quiet, one can fly with each of the two car-type windows right down without experiencing any draught (I flew with the "driving" window down the whole time, having forgotten that it was open), and there is no great multiplication of controls.

The approach and landing are the easiest imaginable. With the engine throttled back and the glide properly trimmed by means of the roof handle, one can float silently around at 60 m.p.h. until the machine is in a good position for the final approach. The mechanically operated flaps can then be moved to the half-down position with one eye on the boundary, and, finally, if one is still a little high, these flaps can be fully depressed, making the gliding angle as steep as one could wish. There is no change of trim as the flaps are moved to their two positions, though they emit a syren-like sound when fully down This sound, incidentally, fades out at about 5 m.p.h. above the stall, so it has its uses. The landing can be made anyhow, and the undercarriage should be wide enough to take any accidental swing after touching down. With the flaps either up or down, the "24" sideslips with pleasant visibility, so one has a third means of adjusting the approach without the rumbling which is so necessary on many modern types.

Vicelessness

At a safe height I played with straight stalls, both flapped and unflapped, and made one exceedingly slow sideslip by way of learning the worst. In each case the machine simply sinks and drops its nose a trifle to the accompaniment of minor shudderings as the A.S.I. indications go below 50 m.p.h. No doubt the "24" will spin with sufficient provocation, but it is difficult to imagine that ordinary carelessness will produce anything worse than an expensive sink into the deck.

Criticisms are limited to the toe-operated brakes, which do not give one full accuracy of control on the ground and gave me an ankle-ache, and to the view, which, excellent in every normal direction, is non-existent to the rear and poor during steep gliding turns. Apparently the roof window has been discarded as unnecessary.

If our expansion programme goes on as it is going now there will be no full-size light aeroplanes to be bought over here, and machines like the Fairchild "24" will just fill the gap. A pity; but it is nice to think that something will be available during the lean years. No price has yet been fixed, but it is probable that the Ranger-engined machine will be sold at about £1,400 and the Warner-engined model at about £1,350.

INDICATOR.

THE FAIRCHILD "24."
150 H.P. 6-CYL. RANGER ENGINE.

Weight empty	1,551 lb.
Gross weight	2,400 lb.
Max. speed	127 m.p.h.
Cruising speed	121 m.p.h.
Rate of climb	650 ft./min.
Take-off run	470 ft.
Landing speed	47 m.p.h.
Cruising range	500 miles
Distributors:	Malcolm & Farquharson, Ltd., Heston Airport, Hounslow, Middx

D.H.'s LARGEST C.P.

INTENDED for high-powered British engines which are now going into production, the "largest yet" controllable-pitch airscrew has made its appearance from the D.H. works.

A three-blader, it is 14 ft. 6 in. (4.42 m.) in diameter, and is suitable for installations in the region of 1,700 h.p. Designated the 6,000 size, it embodies the same type of hydraulic control mechanism as do the five smaller sizes in the D.H. range. It is interesting to learn that, whereas the weight of the smallest model (the 1,000 size) represents only 0.34 lb./h.p. when fitted to an engine of 210 h.p., the new 6,000 type shows an even more favourable ratio—0.32 lb./h.p.—when installed on an appropriate engine.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS — AIR MINISTRY ANNOUNCEMENTS

ANGLO-CANADIAN-AMERICAN : One of two Northrop Delta cabin floatplanes built under licence by the Canadian Vickers firm for the Royal Canadian Air Force. The engine is a 750 h.p. Wright Cyclone F.

THE STAFF COLLEGE

The following name should be added to the list of R.A.F. officers who completed satisfactorily the fourteenth course (1936) at the R.A.F. Staff College and are entitled to the letters "*p.s.a.*" after their names in the Air Force List:—Sqn. Ldr. H. W. Pearson-Rogers.

RETIRED OFFICERS

It has been decided that retired R.A.F. officers who are liable to recall to service, and who may be designated in peace time for the appointments they would be required to fill in time of emergency, may be selected to undergo such training, not exceeding 14 days in any one year, as may be considered necessary in the duties of their posts.

While undergoing training officers will receive pay as laid down for officers re-employed in emergency. Retired pay will be suspended as laid down in the regulations.

AIR OBSERVERS AND AIRMAN PILOTS

In order to facilitate the selection of air observers for training as pilots, it has been decided to modify in their favour certain of the conditions of eligibility. In the future, airmen who have completed one year's service after qualification as air observers may, if eligible in other respects, be recommended for training as pilots provided they are under the age of 28 at the time of commencing flying training and irrespective of the period of service rendered after the completion of trade training.

FOREIGN OFFICERS ATTACHED

Lt. Cemal and Lt. Saim, of the Turkish Air Force, have been attached to the School of Air Navigation, Manston, until October 23.

FLYING ACCIDENT

The Air Ministry regrets to announce the following flying accident:—

F/O. Alfred John Whillier, Sergt. Henry Garnett Jenkins (Royal Air Force Volunteer Reserve), and A/C.1 William Arthur Murray lost their lives in a collision between two aircraft which occurred at Botley, Hants, on August 25. F/O. Whillier was the pilot and A/C.1 Murray a passenger of one aircraft, and Sergt. Jenkins the pilot of the other aircraft.

AN AUSTRALIAN MEMORIAL

The Australian Flying Corps Association has decided to erect at Point Cook a permanent memorial in stone to Australian airmen who gave their lives in the Great War. It is estimated that the cost will be £950, of which about £400 has been found. Australian airmen scattered about the world or their comrades from other parts of the Empire, as well as relations of the fallen, may wish to subscribe. Contributions, large or small, may be sent to Capt. R. Ross, Nicholas Building, 37, Swanston Street, Melbourne, C.1.

THE COUNTY OF ABERDEEN SQUADRON

The first Commanding Officer of No. 612 (County of Aberdeen) (Army Co-operation) Squadron of the A.A.F. is Sqn. Ldr. Finlay Crerar, who was first of all in command of the Aberdeen Fortress Royal Engineers—which, about four years ago, was converted into the 319th Anti-Aircraft Co., Royal Engineers. A start has already been made with the enlistment of officers for the squadron. Sqn. Ldr. Crerar is a native of Millport, and was educated at Glasgow High School. He has been in Aberdeen since 1921, being senior partner in the firm of James Blake, building contractors, Summer Street.

ICING OF AILERONS

During experimental flights undertaken for the purpose of testing de-icing equipment, it has been found that the lateral control of an aircraft may be jammed temporarily.

In each case this has happened when the aircraft entered a region in which the temperature of the atmosphere was about 0° C., after having flown for some time in very severe icing conditions. At this temperature the ice on the leading edges of the planes and ailerons was melting and breaking away. It is thought that some of this loose ice found its away into the gap in front of the balance portion of the aileron, and restricted its movement.

The first indication of this condition has been a sharp snatch laterally on the control column which may move the control column by as much as a fifth of its normal full movement. In every case it has been possible to free the ailerons by moving the control column farther in the direction caused by the snatch thus allowing the ice to clear, before resuming normal control. It is considered that any attempt to force the control column back to its normal position before clearing the ice may result in locking the ailerons, and the loss of lateral control.

NO. 204 (F.B.) SQUADRON'S CRUISE

The four Londons of No. 204 (Flying Boat) Squadron, which left Mount Batten on August 9 for a cruise in the Mediterranean, started on their return journey from Malta on Friday, August 27. On the first day's flight the weather was bad, and instead of making the trip in formation, as had been intended, three of the boats arrived at Gibraltar at different times, while the fourth arrived on the following day. The squadron arrived at Mount Batten on Monday, August 30.

ROYAL AIR FORCE GAZETTE

London Gazette, August 20, 1937

General Duties Branch

The following Flying Officers are promoted to the rank of Flight Lieutenant on the dates stated:—R. J. F. Craig (July 6); W. M. Graham (August 6).

The following Pilot Officers are promoted to the rank of Flying Officer on the dates stated:—E. C. Eaton, F. C. Hopcroft (July 13); V. A. Pope, R. E. Xavier Mack (July 16).

P/O. G. W. Parsons is transferred to the Reserve Class C (August 9); Acting Pilot Officer on probation J. R. Cherry is transferred to the Reserve Class C (August 8); Sub.-Lt. R. J. Thoresby, R.N., Flying Officer, R.A.F., relinquishes his temporary commission on return to Naval duty (August 4).

Accountant Branch

The following Warrant Officers are granted permanent commissions as Flying Officers on probation with effect from the dates stated and with seniority of June 14, 1937:—E. G. Parry (July 7); F. V. M. Rich (July 31); A. F. B. Waller (August 2).

Commissioned Engineer Officers

The following Warrant Officers are granted permanent commissions as Flying Officers on probation with effect from the dates stated and with seniority of May 18, 1937:—H. L. Millyard, H. O. B. Mawdsley, E. R. Paley, W. J. S. Barnard, L. G. Hucker, B. A. Vautier, R. D. Gough, L. Davey, A.F.M. (July 29); M. W. Moore (August 2).

Commissioned Signals Officers

The following Warrant Officers are granted permanent commissions as Flying Officers on probation with effect from July 29, 1937, and with seniority of May 18, 1937:—J. Lindsay, H. J. Maxted, J. Woods, J. A. C. Pride, D. McLaren.

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

W. F. Parkinson is granted a commission as Flying Officer in Class A with effect from August 10, 1937, and seniority of April 10, 1931; K. C. Winton is granted a commission as Pilot Officer on probation in Class A (May 19) (substituted for notification in the *Gazette* of June 29); Sqn. Ldr. H. Dawes, M.B.E. (R.A.F. Retired) is granted a commission as Wing Commander in Class C (June 21) (substituted for notification in the *Gazette* of July 20); Capt. J. C. Mitchel is granted a commission as Flight Lieutenant in Class C (July 13); F/O. R. V. Redpath relinquishes his commission on completion of service (March 2); F/O. E. F. Rhodes relinquishes his commission on completion of service and is permitted to retain his rank (June 8); the commission of Acting Pilot Officer on probation C. R. de Verteuil is terminated on cessation of duty (August 8).

SPECIAL RESERVE

General Duties Branch

The following relinquish their commissions on July 1 consequent on the conversion of No. 502 (Ulster) (Bomber) Squadron from Special Reserve to an Auxiliary Air Force Squadron:—Flt. Lt. R. C. Newton, F/O. B. G. Corry, F/O. R. T. Corry, F/O. M. J. C. Stanley, P/O. A. P. B. Holmes, P/O. G. M. Gardner, P/O. J. R. Garrett, P/O. S. J. Harrison.

Medical Branch

F/O. C. W. Kidd, M.D., B.Ch., relinquishes his commission on July 1 consequent on the conversion of the Special Reserve to the Auxiliary Air Force.

AUXILIARY AIR FORCE

General Duties Branch

No. 502 (Ulster) (Bomber) Squadron.—The following are granted commissions in the ranks stated with effect from July 1, and with seniority of the dates stated:—Flt. Lt. R. C. Newton (February 12, 1933); F/O. B. G. Corry (May 19, 1935); F/O. R. T. Corry (May 19, 1935); F/O. M. J. C. Stanley (May 19, 1935); P/O. A. P. B. Holmes (May 5, 1935); P/O. G. M. Gardner (March 21, 1936); P/O. J.R. Garrett (June 12, 1936); P/O. S. J. Harrison (January 1, 1937).

T. M Palmer is granted a commission as Pilot Officer (July 21).

No. 503 (County of Lincoln) (Bomber) Squadron.—The following Pilot Officers are promoted to the rank of Flying Officer on the dates stated:—J. S. F. Hood (July 11); J. S. Bell, R. H. Smith (July 20).

No. 602 (City of Glasgow) (Bomber) Squadron.—J. O. Kenneth is granted a commission as Pilot Officer (July 28); P/O. R. F. Boyd is promoted to the rank of Flying Officer (May 2).

No. 605 (County of Warwick) (Bomber) Squadron.—F/O. E. A. Titley relinquishes his commission (August 5).

No. 612 (County of Aberdeen) (Army Co-operation) Squadron.—F. Crerar is granted a commission as Squadron Leader and appointed to the command of the Squadron (June 15).

No. 614 (County of Glamorgan) (Army Co-operation) Squadron.—Capt. R. Cadman (late R.A.F.) is granted a commission as Squadron Leader and appointed to the command of the Squadron (June 8).

Equipment Branch

Major A. H. Erskine-Lindop, M.C., Indian Army (Retired) is granted a commission as Flight Lieutenant (August 1).

Medical Branch

No. 502 (Ulster) (Bomber) Squadron.—C. W. Kidd, M.D., B.Ch., is granted a commission as Flying Officer with effect from July 1 and with seniority of January 23, 1936.

AUXILIARY AIR FORCE RESERVE OF OFFICERS

E. A. Titley is granted a commission as Flying Officer in Class C (August 5).

London Gazette, August 24, 1937

General Duties Branch

The following are granted short service commissions as Acting Pilot Officers on probation with effect from and with seniority of August 9, 1937:—J. H. L. Allen, J. I. Baker, E. R. Berry, M. L. Birch, S. B. Bintley, F. E. Board, F. M. Boycott, D. S. M. Burrell, H. Burton, R. B. G. E. Clark, R. N. Cullen, R. T. P. Davidson, R. D. Davis, J. H. W. Dunn, J. D. Edmonds, G. A. Edney, R. A. G. Ellen, P. Fish, M. M. Fleming, D. A. Fordham, I. M. Fraser, P. J. Frost, C. N. Gardner, J. C. Gates, D. B. Gericke, F. C. Gibbs, C. F. Gibson, R. L. Clyde, R. A. Green, D. G. Hall, G. D. Hill, J. Ing, J. M. D. Irvine, D. J. G. Jackson, L. Jones, C. B. Jordan, C. F. Kirkwood-Hackett, A. J. A. Laing, J. O. Lalor, J. H. Laughlin, G. R. Leatherbarrow, J. R. H. Lewis, A. J. A. Llewellin, A. L. MacEwen, K. A. Mackay, D. I. McMonnies, D. A. P. McMullen, A. W. Matthews, B. G. Meyer, C. G. Miles, E. Q. Moody, W. S. Moore, J. C. Mungo-Park, A. D. Nunweek, D. G. Ogilvie, D. T. Parrott, P. D. Parry Jones, M. M. Powell, R. A. Ransley, M. E. Redgrave, G. T. Rhodes, G. S. Richardson, J. F. Roberts, M. G. Robin, G. Robinson, L. J. Rooney, V. A. W. Rosewarne, H. Rosofsky, D. E. Ryder, J. C. G. Sarll, J. F. Sharp, W. A. Smith, P. W. Spencer, J. W. Stephens, T. H. B. Tayler, C. L. Taylor, C. R. D. Thomas, J. P. Thompson, H. V. S. Todd, E. F. Tonge, K. G. J. Wakefield, J. H. G. Walker, E. P. Willcox, W. C. Wilkinson, N. Williams.

Cdr. C. W. Byas, R.N., is reattached to the R.A.F. as a Squadron Leader, with effect from August 9, 1937, and with seniority of July 1, 1935; Lt.-Cdr. P. W. Humphreys, R.N., is reattached to the R.A.F. as a Flight Lieutenant with effect from August 10, 1937, and with seniority of April 1, 1935; Capt. A. C. Newson, R.M., Flight Lieutenant, R.A.F., ceased to be attached to the R.A.F. on return to duty with the Royal Marines (July 1). (Substituted for notifications in *Gazettes* of July 20 and July 27.) Lt. J. de F. Jago, R.N., Flight Lieutenant, R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (August 10).

The following Flying Officers are promoted to the rank of Flight Lieutenant on the dates stated:—D. P. Hanafin (July 16); H. C. S. Vetch, A. G. Strutt, F. E. H. Cooper, and N. W. D. Marwood-Elton (Acting Flight Lieutenant) (August 6).

The following Flying Officers are promoted to the acting rank of Flight Lieutenant on the dates stated:—G. T. Toland (June 8); H. R. Coventry (June 15); F. J. Manning (June 22); K. Capel-Cure (July 1); D. N. J. P. Leggett (July 8); F. B. Chapman (July 26); R. G. Seys, D.F.C. (August 7).

P/O. F. F. Rainsford is promoted to the rank of Flying Officer (July 20); Flt. Lt. H. L. Fry is transferred to the Reserve, Class A (July 31). The short service commission of Acting Pilot Officer on probation A. Gammie is terminated on cessation of duty (August 9).

Equipment Branch

F/O. N. V. Lindemere resigns his permanent commission (August 14).

Dental Branch

The commission of F/O. H. B. Shay, L.D.S., is antedated to April 1, and he ceases to be seconded to Guy's Hospital with effect from August 7; F/O. L. C. Bellsham-Revell, L.D.S., is promoted to the rank of Flight Lieutenant with effect from August 1 and with seniority of February 1.

Chaplains Branch

The Rev. J. N. Keeling is granted a short service commission with the relative rank of Squadron Leader with effect from and with seniority of August 13.

Erratum

In the *Gazette* of August 3, for G. R. N. H. Jam read G. R. N. H. Jan.

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

The following are granted commissions as Acting Pilot Officers on probation in Class A with effect from and with seniority of August 9:—J. L. Allen, S. P. V. Bird, P. F. Eames, T. J. Edwards, A. R. Fordham, A. S. Gilbert, T. W. Gillen, F. G. Haywood, A. K. Holdsworth, T. J. A. King-Joyce, W. J. W. Kingston, H. H. Knight, K. Laxton, L. R. G. Mitchell, A. H. Mobley, J. F. Nicholson, D. K. Robertson, A. T. N. Scoltock, M. F. Scragg, H. Swanston, P. E. W. Walker, R. W. Wallens, B. P. Wallis, T. D. Waters, J. R. C. Young.

Lt. H. C. Tallboy is granted a commission as Flight Lieutenant in Class C (July 7); L. R. Butters is granted a commission as Flying Officer in Class C (May 19); F/O. U. S. Mackay is transferred from Class A to Class C (May 30, 1935).

The following Flying Officers are transferred from Class AA (ii) to Class C on the dates stated:—G. Watson (May 14); R. A. Atkinson (August 15).

F/O. W. R. Bailey is transferred from Class C to Class AA (i) (January 22):—F/O. H. Walker is transferred from Class C to Class B (July 8).

The following Flying Officers relinquish their commissions on completion of service on the dates stated and are permitted to retain their rank:—S. J. Wheeler (February 19); P. Bailey (August 10).

Flt. Lt. R. F. A. W. Williams relinquishes his commission on completion of service (March 16); P/O. L. Jones relinquishes his commission on appointment to a short service commission in the Royal Air Force (August 9).

AUXILIARY AIR FORCE

General Duties Branch

No. 502 (Ulster) (Bomber) Squadron.—Y. J. Kirkpatrick is granted a commission as Pilot Officer (July 10).

No. 604 (County of Middlesex) (Fighter) Squadron.—P/O. J. W. Charters is promoted to the rank of Flying Officer (April 24).

No. 605 (County of Warwick) (Bomber) Squadron.—P/O. P. A. Dawes is promoted to the rank of Flying Officer (May 7).

No. 607 (County of Durham) (Fighter) Squadron.—A. O. Glover is granted a commission as Pilot Officer (July 4).

No. 615 (County of Surrey) (Army Co-operation) Squadron.—F/O. G. A. B. Cooper is transferred from No. 605 (County of Warwick) (Bomber) Squadron (August 16).

Medical Branch

No. 605 (County of Warwick) (Bomber) Squadron.—Flt. Lt. J. S. Jerome, M.C., M.A., B.M., relinquishes his commission on completion of service and is permitted to retain his rank (July 5).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commanders.—B. Ankers, D.C.M., to No. 3 (Indian Wing) H.Q., India, 2.4.37; to command vice Sqn. Ldr. R. Reay-Jones. A. R. Churchman, D.F.C., to R.A.F. Station, Cranwell, 26.7.37; for administrative duties and as Officer-in-Charge, Station Headquarters, vice Wing Cdr. J. H. O. Jones. R. M. C. Macfarlane, M.C., to R.A.F. Depot, Uxbridge, 4.8.37; for administrative duties. I. M. Rodney, to Headquarters Fighter Command, Stanmore, 9.8.37; for Signals duties. H. S. P. Walmsley, O.B.E., M.C., D.F.C., to R.A.F. Station, Abingdon, 1.7.37; to command vice Wing Cdr. E. R. Pretyman, A.F.C. C. Crawford, to R.A.F. Station, Digby, 13.8.37; to command. P. H. Mackworth, D.F.C., to Directorate of Training Dept., Air Ministry, 1.8.37, vice Wing Cdr. W. Underhill, D.S.C.

Squadron Leaders.—E. A. Hodgson, to Directorate Staff Duties, Air Ministry, 4.8.37. P. M. McSwiny, to Headquarters, Training Command, Market Drayton, 16.7.37; for armament duties. H. J. Gemmel, to Record Office, Ruislip, 7.8.37; for Administrative duties, vice Sqn. Ldr. J. Duminy. A. H. Simmonds, to No. 2 F.T.S., Digby, 1.8.37; for Engineer duties, vice Flt. Lt. T. N. Coslett. R. H. Donkin, to No. 98 (Bomber) Squadron, Hucknall, 3.8.37; to command. C. H. Flinn, to No. 3 Flying Training School, Grantham, 4.8.37; for flying duties in Advanced Training Squadron, vice Sqn. Ldr. B. H. C. Russell. J. W. Hutchins, to R.A.F. Station, Mildenhall, 29.7.37; for Engineer duties vice Flt. Lt. R. T. Cazalet. F. W. Sinclair, to R.A.F. Station, Halton, 27.7.37; for Administrative duties. H. J. Saker, M.V.O., to Directorate of Signals Dept., Air Ministry, 9.8.37; vice Wing Cdr. I. M. Rodney. F. J. Taylor, to Central Flying School, Upavon, 9.8.37; for Administrative duties, vice Wing Cdr. K. H. R. Elliot, D.S.O.

Flight Lieutenants.—J. J. Watts, to No. 603 (City of Edinburgh) (Bomber) Squadron, 6.8.37. R. E. G. Brittain, to School of Air Navigation, Manston, 3.8.37. T. W. S. Brown, to R.A.F. Depot, Uxbridge, 9.8.37. W. H. N. Turner, to No. 607 (Co. of Durham) (Fighter) Squadron, Castledown, 29.7.37.

Flying Officers.—J. S. Bartlett, to No. 9 Flying Training School, Hullavington, 29.7.37. A. C. Brown, to No. 53 (Army Co-operation) Squadron, South Farnborough. J. D. Green, to No. 2 (Army Co-operation) Squadron, Hawkinge, 9.8.37. J. B. P. Thomas, to School of Air Navigation, Manston, 5.8.37.

Pilot Officers.—A. G. H. Bell, to No. 224 (General Reconnaissance) Squadron, Thornaby, 7.8.37. G. P. Harger, to School of Air Navigation, Manston, 7.8.37. A. T. Irvine, to No. 211 (Bomber) Squadron, Mildenhall, 7.8.37. R. H. Lonsdale, to No. 5 Flying Training School, Sealand, 19.7.37.

Acting Pilot Officers.—G. A. W. Goodwin, to No. 8 (Bomber) Squadron, Aden, 16.7.37. F. V. Morello, to No. 8 (Bomber) Squadron, Aden, 16.7.37. S. A. F. Robertson, to No. 8 (Bomber) Squadron, Aden, 16.7.37. H. St. G. Turner, to No. 8 (Bomber) Squadron, Aden, 15.7.37. E. W. Campbell-Colquhoun, to No. 68 (Fighter) Squadron, Duxford, 7.8.37. J. K. Cannon, to No. 102 (Bomber) Squadron, Honington, 7.8.37. W. C. G. Cogman, to No. 102 (Bomber) Squadron, Honington, 7.8.37. K. H. P. Murphy, to No. 102 (Bomber) Squadron, Honington, 7.8.37. D. W. H. Owen, to No. 102 (Bomber) Squadron, Honington, 7.8.37. C. H. Clark, to No. 233 (General Reconnaissance) Squadron, Thornaby, 7.8.37. G. Edwards, to No. 233 (General Reconnaissance) Squadron, Thornaby, 7.8.37. T. W. T. McComb, to No. 233 (General Reconnaissance) Squadron, Thornaby, 7.8.37. D. MacKenzie, to No. 233 (General Reconnaissance) Squadron, Thornaby, 7.8.37. R. H. Dingle, to No. 99 (Bomber) Squadron, Mildenhall, 7.8.37. R. A. Field, to No. 113 (Bomber) Squadron, Upper Heyford, 7.8.37. A. P. Williams, to No. 113 (Bomber) Squadron, Upper Heyford, 7.8.37. P. L. Gibson, to No. 49 (Bomber) Squadron, Worthy Down, 7.8.37. R. C. Graveley, to No. 88 (Bomber) Squadron, Boscombe Down, 7.8.37. J. B. W. Humpherson, to No. 72 (Fighter) Squadron, Church Fenton, 7.8.37. J. B. Nicolson, to No. 72 (Fighter) Squadron, Church Fenton, 7.8.37. J. E. F. Jacklin, to No. 34 (Bomber) Squadron, Lympne, 7.8.37. M. T. Kirkwood, to No. 82 (Bomber) Squadron, Cranfield, 7.8.37. F. J. Lucas, to No. 10 (Bomber) Squadron, Dishforth, 7.8.37. J. S. Young, to No. 10 (Bomber) Squadron, Dishforth, 7.8.37. A. McL. Lyall, to No. 25 (Fighter) Squadron, Hawkinge, 7.8.37. I. F. McCall, to School of Air Navigation, Manston, 7.8.37. J. C. Whittall, to School of Air Navigation, Manston, 7.8.37. H. G. McDonald, to No. 233 (General Reconnaissance) Squadron, Thornaby, 7.8.37. N. M. McElligott, to No. 142 (Bomber) Squadron, Andover, 7.8.37. G. C. Matheson, to No. 41 (Fighter) Squadron, Catterick, 7.8.37. H. E. H. Overall, to No. 41 (Fighter) Squadron, Catterick, 7.8.37. D. L. L. Morris, to No. 51 (Bomber) Squadron, Boscombe Down, 7.8.37. J. M. Scott, to No. 51 (Bomber) Squadron, Boscombe Down, 7.8.37. A. G. Newton, to No. 61 (Bomber) Squadron, Hemswell, 7.8.37. A. D. Steele-Perkins, to No. 61 (Bomber) Squadron, Hemswell, 7.8.37. D. M. Parker, to No. 220 (General Reconnaissance) Squadron, Bircham Newton, 7.8.37. H. W. Poultney, to No. 214 (Bomber) Squadron, Feltwell, 7.8.37. R. C. Simmons, to No. 214 (Bomber) Squadron, Feltwell, 7.8.37. A. F. Smith, to No. 215 (Bomber) Squadron, Driffield, 7.8.37. G. H. Smith, to No. 215 (Bomber) Squadron, Driffield, 7.8.37. D. M. Stavely, to No. 215 (Bomber) Squadron, Driffield, 7.8.37. J. H. Williams, to No. 211 (Bomber) Squadron, Mildenhall, 7.8.37.

Equipment Branch

Flight Lieutenants.—R. C. Storrar, to R.A.F. Station, Boscombe Down, 2.8.37. C. L. Thompson, to Headquarters, Training Command, Market Drayton, 27.7.37. L. F. Oldridge, to No. 11 Equipment (Ammunition) Depot, Chilmark, 9.8.37. C. P. Wingfield, to No. 11 Equipment (Ammunition) Depot, Chilmark, 9.8.37. E. J. H. Starling, to R.A.F. Station, Worthy Down, 9.8.37.

Flying Officers.—E. G. Ambridge, to R.A.F. Station, Catterick, 9.8.37. C. F. Harrington, to R.A.F. Station, Abbotsinch, 9.8.37.

Accountant Branch

Pilot Officers.—R. P. Bennett, to 59 (Army Co-operation) Squadron, Old Sarum, 4.8.37. R. P. Burtt, to Aeroplane and Armament Experimental Establishment, Martlesham Heath, 9.8.37. J. B. Denning, to R.A.F. Station, Donibristle, 4.8.37. H. S. Maurice-Jones, to R.A.F. Station, Turnhouse, 4.8.37. B. T. Procter, to Air Armament School, Eastchurch, 9.8.37. P. H. Reason, to R.A.F. Station, Bircham Newton, 4.8.37. J. L. Sanderson, to R.A.F. Station, Mount Batten, 4.8.37. H. W. Seear, to R.A.F. Depot, Uxbridge, 9.8.37. L. T. Starling, to No. 53 (Army Co-operation) Squadron, South Farnborough, 4.8.37. H. R. Tredinnick, to R.A.F. Station, Upwood, 4.8.37. W. E. Wolsey, to R.A.F. Station, Mildenhall, 4.8.37.

Medical Branch

Squadron Leader.—G. J. Hanly, to R.A.F. Hospital, Cranwell, 13.8.37; for duty as M.O.

Flying Officers.—C. D. Clements, to R.A.F. Station, Waddington, 9.8.37. N. P. R. Clyde, to No. 1 Flying Training School, Leuchars, 11.8.37. A. W. St. C. Greig, to R.A.F. Station, Grantham, 9.8.37. J. R McWhirter, to No. 5 Flying Training School, Sealand, 9.8.37. F. V. Maclaine, to No. 2 Flying Training School, Digby, 9.8.37. A. Muir, to R.A.F. Station, Thornaby, 9.8.37.

Dental Branch

Flight Lieutenant.—S. C. Allen, to R.A.F. Station, Granthan, 16.8.37.

Flying Officer.—H. B. Shay, to Medical Training Depot, Halton, 8.8.37.

Chaplains Branch

Rev. J. R. Appleyard, to R.A.F. Station, Cranwell, 6.8.37.

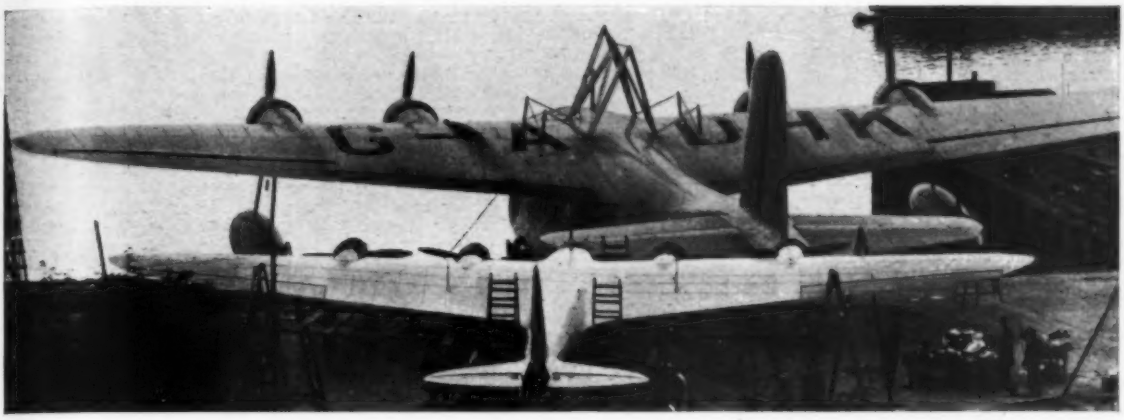
THE KING'S CUP RACE

NEXT week's issue of *Flight* will contain much matter of special appeal to King's Cup competitors, to intending spectators, and indeed, to everybody interested in this important event, which takes place on Friday and Saturday, September 10 and 11.

Features will include an illustrated survey of the course, notes on the pilots and their machines, and general information of value to spectators both at the control points and along the route.

THURSDAY NEXT FLIGHT SEPTEMBER NINTH

COMMERCIAL AVIATION



"MAIA" MEETS "MERCURY": Following the tradition of "happy events," the lusty baby *Mercury*, upper component of the Short-Mayo Composite aircraft, was brought along to her mother-ship, *Maia*, last week. Photographs of the new arrival appear on page 234b.

THE WEEK AT CROYDON

Kick-off for the QBI Season : Two Good Sportsmen Return Unsung : The Night Workers : Croydon's Danger Point

THE QBI season started in earnest last Thursday. As is usual when this business strikes us annually in all its pristine novelty, there was alarm, despondency and considerable delay of certain services, the owners of which found themselves waiting periods which seemed interminable before they could despatch machines. In some cases vital long-distance connections were involved, and one way or another H.M.S. Croydon was not a happy ship—or shall we say aircraft carrier?—for a period. Actually, one's sympathies are also with the control tower people, because what are they to do with helpless, hopeless pilots who get lost trying to find the Airport when really there is no need to get lost at all? The allowance of time for "getting in" is supposed to be ten minutes and another five minutes' grace has to be allowed. After that it seems to boil down to giving the inexpert or improperly equipped pilot just about as long as he needs in the interests of safety, and the rest just have to grin and bear it. There is a high standard set by certain firms and by certain individual pilots, but until Control can "warn off the course" those who either can't or won't abide by the regulations, I can only see a continuance, for the rest, of what Brer Tarrypin called "loungin' around an' sufferin'."

No Laurels

F/O. Clouston and Flt. Lt. Nelson, who put up such a good show in the Marseilles-Damascus Race in their Comet, returned from Paris to Croydon by British Airways almost unnoticed. Nobody threw laurel wreaths round their necks and no exuberant fat man in a funny little hat kissed them on both cheeks. Without a bit of fun of this sort to look forward to, why should any Briton put up any time faster than fourth?

British Airways, by the way, have been wonderfully successful with their Berlin night mail, not only as regards loads of mail and freight, but in regularity. Up to September, I believe, night weather is as good or better than day weather, and I have known many a winter's day when thick fog interrupted all day operations at Croydon but when, on letting the cat out around 11 p.m. one has found perfect visibility and bright starlight. Capt. Flowerday, of British Airways, who is on this night work, spoke in the highest terms of the friendly co-operation received from D.L.H. night-flying pilots, many of whom are so firmly wedded to night flying that they say no mortal man has seen them by daylight for several years. The service runs via Cologne and Hanover and is operated alternately by D.L.H. and B.A. Any small fuss there may have been about B.A. using Junkers machines for this job has died a natural death, for the manifold advantages of using the same type of machine as their German colleagues are obvious to the B.A. pilots, and there is no doubt that the Junkers machine has exceptionally fine night-flying qualities.

A serious accident outside the Airport gates last week brings up a subject on which I have commented more than once—namely, of there being no speed limit or even cautionary sign on Purley Way, which is used as a speed track by all and sundry, especially down the hill from Purley towards London. Nor can the motorist be blamed, for it is a wide, straight stretch of road on which speeding is lawful. Half-way along, however, there is a big and ever-increasing cross-traffic nobody would suspect, in and out of the Airport. Often one cannot get out and across the main road on account of a stream of 70 m.p.h. traffic, and this is not the first accident which has resulted from this absurd and unsafe state of affairs. Here is a matter into which the authorities concerned might look, instead of adopting the lofty attitude and going up in hired aircraft to take a census of bowler hats *versus* cloth caps on our road systems.

Among interesting air cargoes recently have been precious and semi-precious stones from Burmah. We shall be getting peacocks, ivory and apes from Ophir one of these days, but it is going a little too far to say we have already had them—all embodied in the person of one refractory passenger, as one manager remarked lately. The man, he said, was dressed like a peacock, was ivory from the collar studs back and front upwards, and had the manners of one of the less reputable tribes of the Bandar-log.

Tell it not in Gath, but I had a very pleasant experience the other evening returning by an after-dark service from the Continent. The pilot looked like arriving about four minutes before schedule, which isn't done in these punctual days, so what did he do but fly, at the correct height, over part of London to show his passengers the amazingly attractive illuminations of that city.

A. VIATOR.

Commercial Aviation

Germany Surveys the East

MORE than two years ago it was understood that Eurasia Aviation, the Sino-German concern in China, would eventually link up with the D.L.H. network.

During the past week two D.L.H. Ju52s have flown over the Pamirs on survey flights made via Rhodes, Damascus, Baghdad, Teheran, Kabul, and Ansifan, in Kansu, the north-western Chinese province. For more than a year a German meteorologist in Kabul has, it appears, been collecting the necessary data.

Australia Goes American

THE British aircraft industry appears to be steadily losing what it had of the Australian market. Month by month we learn of more American purchases. Australian National Airways now have three D.C.2s and another, for Airlines of Australia, should have arrived last month. Ansett Airways have bought three Electras and Broken Hill Associated Smelters will shortly take delivery of a Lockheed 12 for executive transport.

Meanwhile the Civil Aviation Board has been looking for a suitable aeroplane with which radio and pilot tests may be carried out.

The Air France "Strike"

THE pilots of Air France have won their point in the dispute about the forthcoming North Atlantic trials of the *Lieutenant de Vaisseau Paris*. M. Pierre Cot, on his return from holiday last week, found himself faced with the centainty of a strike of civil pilots and crews if he persisted in permitting the flying boat's trials to be carried out, as was intended, by crews composed of Air Force and Fleet personnel under the command of Capitaine de Corvette Bonnot.

M. Cot decided to yield to the claims of the civilians on the grounds that they had not only a sound case, but held the best cards. The protest was led by Sadi Lecointe, President of the A.P.N.A., the French equivalent of our G.A.P.A.N., and an organisation which includes the pilots, navigators, radio operators and mechanics of Air France, Air Afrique, Air Bleu and Aeromaritime. The French North Atlantic trials will now become—as in the case of America, Germany and ourselves—an exclusively civil aviation affair, although Bonnot will still accompany the team in the capacity to which he is entitled—after all the preliminary work he has put in—that of ground organisation supervisor. A long-drawn-out quarrel is thus happily settled.

Ice Problems

A PARAGRAPH culled from a recent Air Ministry order should be of particular interest to transport pilots. The paragraph, suitably edited, reads as follows:—

"During experimental flights undertaken for the purpose of testing de-icing equipment, it has been found that the lateral control of a machine may be temporarily jammed.

"In each case this has occurred when the aircraft entered a region in which the temperature of the atmosphere was about 0 deg. C., after having flown for some time in very severe icing conditions. At this temperature the ice on the leading edges of the planes and ailerons was melting and breaking away. It is thought that some of this loose ice found its way into the gap in front of the balance portion of the aileron, thus restricted its movement.

"The first indication of this condition has been a sharp lateral snatch on the control column, which may move this column by as much as a fifth of its normal full movement. In every case it has been found possible to free the ailerons by moving the control column farther in the direction caused by the snatch, thus allowing the ice to clear. It is considered that any attempt to force the control column back to its normal position before clearing the ice may result in locking of the ailerons and a consequent loss of lateral control.

The Blackpool Breeze

BLACKPOOL'S little war over joy-riding at Stanley Park has now been raging for a couple of months, and, in the tradition of all the best modern wars now appears to be entering on the intervention stage, for an appeal to the Air Ministry is now threatened by the Corporation. "All right—go on" is, in effect, the joy-dispensers' answer.

A contributor who has spent the last two weeks in Blackpool as an unbiased observer has come to the conclusion that the three services concerned—R.A.S., West Coast and Utility—are acting within their rights and putting up a justifiable fight, while the Corporation have proved themselves to be definitely unfair in their tactics to stop joy-riding which, after all, they solely brought about themselves when they widely advertised for tenders from flying companies at the beginning of the holiday season.

Tenders offering 10 per cent. of all receipts were accepted by the Corporation—a point which is legally interpreted as constituting a contract.

In their latest move, the Corporation have informed the services that in addition to the 10 per cent., a landing fee of 2s. 6d. will be charged for each landing plus 1s. per passenger.

A representative of the Corporation, complete with note-book and well-sharpened pencil (and, presumably, lynx eyes, which seem particularly appropriate, in case there are any 504s about) has been established at the Airport, and he jots down the number of passengers carried on each flight, paying particular attention to Utility's ten-seater Airspeed Ferry. It is the present intention of the services *not* to pay the additional charges levied and they hope that the matter will become the subject of litigation, thereby determining the exact position of air companies who undertake joy-riding from municipal airports.

Alleged complaints from residents of noise caused by low-flying machines and the fact that Blackpool's biggest hospital adjoins the east side of the aerodrome constitute the Corporation's principal weapons, and it is obvious that the support of the local Press has been enlisted. Even a Hart Trainer which flew quite harmlessly over the coast line at a height of approximately 2,500ft. did not escape the critics and the inevitable letter of complaint under a *nom de plume* duly appeared. The hospital, it may be noted, was erected by the Corporation last year irrespective of the fact that it was pointed out that the site adjoined the Municipal Airport.

Complementary Development

NEARLY two years ago we learnt that Mr. F. D. Aldridge, in collaboration with Mr. Pollock-Brown, of P. B. Deviator, Ltd., was working on a device which can only be called an "infra-red receiver."

At that time the work was in its early stages and a few months later we came into contact with a retired American naval commander who appeared to be working on similar lines. In each case the instrument registered, by means of an infra-red emission detector, the presence and approximate position of different objects, and the development appeared to have definite possibilities for use in the guidance of aircraft in conditions of bad visibility, or, in war, for the detection of enemy machines.

The ultra-short-wave radio beacon has, for the time being, become the standard European method of aircraft guidance, and Messrs. Aldridge and Pollock-Brown have turned more towards the shipping interests for support in their experiments. Nevertheless, one feels that these experiments justify financial support both for their possible transport value and from the military value. While all manner of industries are subsidised we are all too prone to leave experimenters to themselves, expecting them to discover some other means of support.

At the same time, it is interesting to know that the P.B. automatic pilot is, in combination with a single-axis camera stabiliser, being used for survey work in this country. As far as air transport operations are concerned, the two developments are largely complementary.

V.P.—V.G.

ALTHOUGH Imperial Airways naturally carry out periodical inspections of the three-bladed v.p. airscrews on the Short Empire boats, arrangements have been made for occasional special examinations at the works of the makers, the De Havilland Company. Accordingly, airscrew No. 5341, the first to be returned under this plan, was recently removed from its Bristol Pegasus engine on the transatlantic boat *Cambria*.

Its log book showed that 593 hours 55 minutes of flying duty, representing some 90,000 miles of travel, had been satisfactorily performed, and the makers state that a scientific examination of the dismantled components confirmed, as expected, that the airscrew was in excellent condition throughout. At the scheduled interim inspections only minor components were renewed and at the complete overhaul the only components which required to be replaced were the front cone packing washer and two cup leathers on the piston—small and very inexpensive items.

The airscrew had been functioning correctly throughout and was in perfect balance. The significance of this last fact can, perhaps, be fully appreciated only by engineers who are experienced in the maintenance of controllable-pitch airscrews, but it does throw an interesting light upon the qualities of the airscrew and the correctness of the treatment and supervision accorded to these units in the intensive but well-ordered service of Imperial Airways. This airscrew is 12 ft. 9 in. (3.9 metres) in diameter, yet on the knife-edge balance it responds to the weight of a cigarette paper on the horizontal blade!

I.O.M. Amalgamation ?

THE visit of Captain Olley and Mr. R. L. Carter to the Isle of Man may portend an amalgamation between the Manx Airway, operated by the Isle of Man Steam Packet Co., Ltd., and Railway Air Services, and Blackpool and West Coast Air Services.

Stornoway Development

AN agreement for the development of an air service to Stornoway is being negotiated between the Stornoway Trustees and the combine in which Highland Airways, Northern and Scottish Airways, R.A.S., and David MacBrayne, Ltd., are interested.

At a meeting convened on August 27 the trustees considered a concrete proposal from Highland Airways for a 21-year lease of an area of ground to be developed by them as an aerodrome. The trustees agreed to accept the proposal, subject to the company accepting a 21-year lease, with breaks at the seventh and fourteenth year, and a stipulation that the aerodrome should be a public one.

The trustees have been in negotiation with Highland Airways for a considerable period, but development of a landing ground was held up by the former's lack of funds. This difficulty may now be surmounted by the offer of the companies interested to lease the ground and carry out their own development work.

The Week Over the Atlantic

THE fastest east-west Atlantic crossing to date in the series of experimental survey flights was made by *Cambria* last Friday. Commanded by Capt. G. J. Powell, *Cambria* left Foynes at 4.39 a.m. (G.M.T.) and landed at Botwood at 7.03 p.m. (G.M.T.), having taken 14hr. 24min. Previously the fastest time for the trip was the 15hr. 3min. standing to the credit of *Caledonia*.

Cambria is scheduled to fly on to Montreal and New York and to call at Ottawa, Toronto, Windsor and Hamilton before returning to Foynes on the night of September 8-9. That crossing, incidentally, will be her fourth.

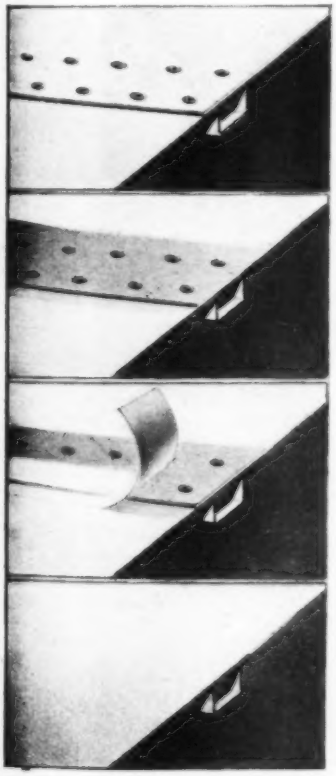
Meanwhile *Caledonia*, *Cambria's* sister-ship, is making an official tour of British coastal towns. An excellent idea, this. Starting from Hythe, *Caledonia* flew east on the first day of her trip by way of Brighton, Margate, Felixstowe, Yarmouth and Brough. Tuesday's itinerary was by way of Scarborough, Newcastle, Glasgow and Ayr, whence *Caledonia* was due to cross to Ramsey, continuing by way of Blackpool, Llandudno, Aberystwyth and Pembroke Dock. Yesterday she was to have looked in on Cardiff, Penzance and Plymouth, returning to her Hythe base today by way of Weymouth and Bournemouth.

The Sikorsky *Clipper III* arrived at Lisbon last Saturday week, having flown from New York by way of the Azores. The original plan to carry out a survey in the Mediterranean was modified owing to political conditions in Spain and elsewhere.

Nordwind, the twin-float Blohm and Voss seaplane of Lufthansa, arrived in Lisbon from Hamburg last Tuesday week on the second of eight experimental flights to America.

More Work for "Cavalier"

SO popular has become the New York-Bermuda service that in future *Cavalier* (Imperial Airways) and the *Bermuda Clipper* (Pan American) will make two return journeys a week instead of one. *Cavalier* will fly to New York on Mondays and Fridays, returning on Tuesdays and Saturdays, and the *Clipper* will leave New York on Wednesdays and Fridays, returning on Thursdays and Sundays. Fares are unchanged at £20 single and £36 return.



The irregularities to be smoothed out by the new Cellon process.

The surface treated prior to application of strip.

Special aluminium strip is ironed on.

The finished job, after the application of finishing coats.

FOR "CLEANER" SKINS

A New Cellon Treatment

COLLOQUIALLY known as "strip-tease," the new Cellon process for covering rows of rivet heads, overlapping joints and similar minor irregularities in metal sheet covering is already being tried out on the A. W. Whitley and Ensign, the Blackburn dive bomber, C.W. Cygnet, Miles fighter-trainer and Saro London. The process has a variety of applications, and is claimed to confer not only protection against moisture, but, in certain cases, definite aerodynamic advantages. Probably it may be most profitably used with flush or pop riveting and to smooth out overlapping joints, although in the Saro London it has been adapted to cover the recesses of corrugations and to give a smooth hull interior. Its application to lines of "proud" rivet heads is, perhaps, not justified to the same extent.

Briefly, the process entails coating aluminium foil, or other suitable strip, with a thermo-plastic adhesive which incorporates anti-corrosive agents such as zinc chromate. The strip is normally used in widths of 1¼in. and is supplied ready coated. The irregularities to be smoothed out are first given a priming coat and the strip is applied with an electric iron, the required temperature being about 110 deg. C. This leaves a smooth surface which is then given two coats of paint —in the case of Service machines, one of grey and one of "camouflage." Alternatively an "all aluminium" finish can be obtained, as on the C.W. Cygnet.

The strip weighs about 6½lb. a thousand feet—about 600ft. are needed to treat a Whitley's wings. Various thicknesses have been tried, the present standard, which is thin enough to preclude chamfering the edges, being 0.004in. It will be realised that the process may effect great savings in time and labour, particularly where pop rivets are used and would otherwise have to be filled laboriously by hand.

Vega Gull, Five Up, Wins Littorio Rally

A PERCIVAL Vega Gull (Series II Gipsy Six with D.H. v.p. airscrew) flown by Dr. Parodi, won the Italian Littorio Rally.

The Vega Gull was specially licensed to carry four passengers in addition to the pilot, and scored 1,701 points, which was 387 more than the second machine. There were 76 starters and 52 finishers.

Airworthiness

THE wording of the fifth paragraph in the short article last week dealing with the Air Registration Board and its work may have given the impression that freedom is already completely with us. Machines are now exempt in certain circumstances from the need for a C. of A., but the Air Navigation (Amendment) (No. 4) Order, 1937, has not yet, of course, come into operation.

MODELS

Improved Performance by Petrol Craft : More About the Successful Wakefield Cup Models

By M. R. KNIGHT

Petrol Model Activity

NEARLY fifty petrol models, British, French and American, were flown at Fairey's Great West Aerodrome on August 2, when the S.M.A.E. held contests for the Sir John Shelley Cup and the Bowden International Trophy. Both contests were designed to encourage stability, controllability, and reliability. The excellent flights made by no means represented the maximum capabilities of the models, as their wings were officially clipped, metaphorically speaking, in the interests of safety. One model charged the loud-speaker van, shedding its engine, and another abolished itself in a spectacular power-dive, but crashes were few.

Engines showed greater reliability. One missed the remarkable little British 2.3 c.c. Spitfire, but sundry British 18 c.c. Comets functioned creditably. The American 6 c.c. Baby Cyclone and 9 c.c. Brown Junior predominated numerically, partly on account of their intermediate size, which is a convenient one.

The Shelley Cup Contest

THE rules of this national contest stipulated one flight of 45 sec. duration, and one of 60 sec., points being deducted on a sliding scale for durations below or above these figures, and forfeited entirely for a landing outside the aerodrome. The cup was won by Mr. C. R. Jeffries (Birmingham M.A.C.). He scored 57 points with the smallest model present, a 4 ft. 9 in. constant-chord high-wing monoplane, in effect a Bowden *Kanga Kub*, modified to take a 6 c.c. Baby Cyclone in place of the smaller Spitfire. It was built in fourteen spare evenings, and brought to the aerodrome untested. Details and a photograph appear on this page.

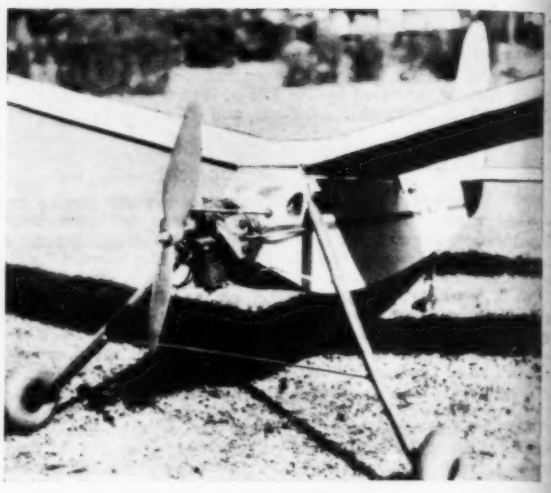
Mr. R. J. Trevithick (T.M.A.C.) scored 53 points with a 4 ft. 9 in. constant-chord high-wing of his own design, weighing 5½ lb., which, with a 9 c.c. Brown Junior, took off easily and flew strongly and consistently. Noteworthy features were a wing-loading of 23 oz./sq. ft., and a rudder-bias gear which automatically eliminated the offset when the power ceased. Third place went to Mr. J. C. Gardner (Banbury D.M.A.C.), who achieved 48.5 points with his first petrol model, a 7ft. constant-chord high-wing weighing 4½lb., and powered by a Baby Cyclone. Another outstanding model was a 7ft. 9in. parasol, powered with a 9 c.c. American Loutrel, by Mr. H. L. Sharvell, of Wembley. The fuselage consisted of bulkheads slipped over a central spar, steadied by two stringers, and planked with narrow strips of ⅛in. balsa.

Bowden International Contest

AMERICA won Capt. C. E. Bowden's handsome trophy, after four competitors had tied and re-flown. The donor stipulated three flights of 40-90 sec. duration, with extra points if only slight damage was sustained, and still more points if undamaged, with total forfeiture for a duration above or below the required range, or a landing outside the aerodrome. There were 24 starters.

Mr. Herbert Fish (U.S.A.) scored 150 points with a 6ft. constant-chord parasol (9 c.c. Brown Junior), which had such a float that, in spite of perfect time-switch operation, it missed disqualification by a fraction of a second. The flight lasted 89⅛ sec. Mr. J. C. Gardner (Great Britain) scored 120 points with his Shelley Cup model. Two competitors obtained 90 points, Mr. J. S. Colyer (Great Britain) and Mr. F. E. Nugent (Great Britain). The former flew an 8ft. tapered high-wing *Blue Dragon*, weighing 6lb., and mounting a Brown Junior. This is a Bowden design which until recently held the British record. Mr. Nugent's model was a modified *Comet* constant-chord high-wing with inverted 18 c.c. Comet two-stroke. The *Comet* aeroplane and engine hold the British record of 16 min. 25 sec., and are designed, as is the Spitfire, by Mr. A. E. Brooks.

Mr. R. Kronfeld, who was invited to the microphone, seemed particularly interested in a pusher high-wing with twin-rudders, the work of Mr. J. C. Bamford, of Bristol. Many other excellent models were flown, some of which I hope to describe in due course.



The 6 c.c. model with which Mr. C. R. Jeffries won the Shelley Cup for petrol-powered craft.

Shelley Cup Winner

THE modified *Kub* with which Mr. Jeffries won the Sir John Shelley Cup is a constant-chord high-wing monoplane weighing under 3lb. The span is 4ft. 9in., the chord 9½in., the section a deepened R.A.F.32, and there are 3 degrees of sweepback and 11 of dihedral. Balsa sheet 1/32in. thick covers the front portion of the wing. The fuselage is formed very simply by cutting the sides from 1/16in. balsa sheet, cementing balsa longerons and uprights to them, assembling with cross-pieces and two plywood bulkheads, and covering with doped silk. The Baby Cyclone engine is mounted on a detachable nose-piece which, in the event of a crash, snaps the restraining rubber bands and tumbles out harmlessly. Steel wire, faired with balsa, is used for the undercarriage, which has a track of 18in., and is designed to bounce the nose up when landing. The fin has an outline of 3/16in. laminated balsa. The tail section is Clark Y. Over a hundred flights have been made without damage.

Wakefield Models, 1937

LAST month's report of the Wakefield Contest, being in the nature of a Stop Press item, was necessarily brief. Here are some details of the competing machines, revealing wide divergencies in the application of the new weight/area rule (80z. minimum and 200 sq. in., with plus or minus tolerance of 10 sq. in.).

The winning French model was a constant-chord parasol, with diamond-section fuselage, a layout of American origin. Like the majority of entrants, it relied upon a single skein of rubber. The R.A.F. 32 wing-section constituted Britain's modest share in the victory! The tail section was M.6. Another French model, with an airscrew at either end of the fuselage, and with wire skids in lieu of wheels, flew well, but seemed troubled with its gadgetry. The Germans mostly flew cabin high-wings, with slight taper and deep, rectangular fuselages, and did wonders with synthetic rubber. They had also a short-span, back-swept low-wing, with very wide, shallow fuselage, and tail-plane on top of the fin. Holland had several twin-ruddered high-wings—designed by J. van Hattum, one-time S.M.A.E. Competition Secretary—beautifully built, weighing 11oz., and somewhat underpowered. One Belgian high-wing (with constant-chord centre-section and the trailing-edge of the outer panels swept forward almost to a point), despite a certain unsteadiness, seemed likely to be wafted to victory by a thermal. There was also a magnificent constant-chord high-wing, with monocoque fuselage fashioned from four hollowed balsa blocks. Two of the Swedish machines were constant-chord high-wings with dihedral on the tips only.

The Americans relied chiefly on parasols with diamond-section fuselages. Some had straight-chord wings with normal dihedral, others had extra dihedral on the outer panels, and two had elliptical wings. One of the South African models had a spring-adjustment rubber-tensioner, screwed to or fro according to whether the motor cut too soon or too late. Unquestionably one of the finest models was the tapered shoulder-wing with circular fuselage, with which Mr. R. N. Bullock secured second place for Great Britain.

* * *

Two recently published books on model aviation are reviewed on page 233.